BIBLIOGRAPHY OF Technical Reports

Contents

March 5, 1954
Vol. 21, No. 3

Apparel 57
Chemicals and Allied Products 57
Plastics and Plasticizers 57
Chemical Engineering 57
Miscellaneous Chemicals 58
Electrical Machinery 59
Communication Equipment 59
Electronics 59
Generators, Motors 66
Miscellaneous 67
Food and Kindred Products 68
Fuels and Lubricants 68
Highways and Bridges 69
Instruments 69
Lumber and Wood Products 70
Machinery 71
Medical Research and Practice 71
Metals and Metal Products 72
Meteorology and Climatology 73
Minerals and Mineral Products 74
Ordnance and Accessories 74
Personnel Aptitude Testing 74
Photographic and Optical Goods 74
Physics 74
General 74
Nuclear 76
Psychology 76
Structural Engineering 77
Textiles and Textile Products 79
Transportation Equipment 79
Aeronautics 79
Aircraft 79
Instruments 81
Engines and Propellers 82
Airports and Airways 83
Aerodynamics 83
Land Transportation 84
Marine Transportation 85
Water Supply 85
AEC Publications 86

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BUSINESS AND DEFENSE SERVICES ADMINISTRATION
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BIBLIOGRAPHY OF Technical Reports

Vol. 21, No. 3 March 5, 1954

APPAREL

Case study data on productivity and factory performance: Knit underwear. U. S. Bureau of Labor Statistics. Jul 1953. 148p photos, diagrs, tables, graph Available from U. S. Bureau of Labor Statistics, Washington 25, D. C. PB 112740

Prepared for Foreign Operations Administration, Productivity and Technical Assistance Division.
1. Underwear, Knitted - Manufacture 2. BLS R 41.

Korean environment. U. S. Office of the Quartermaster General. Military Planning Division. Research and Development Branch. Environmental Protection Section. Dec 1950. 29p maps (1 fold) graph, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112725

Supersedes Special report no. 44.
1. Climate - Korea 2. Clothing, Combat - Korea
3. QMC EPS 171.

CHEMICALS AND ALLIED PRODUCTS

Plastics and Plasticizers

Linearity in the stress-strain relations of polymers, by E. H. Lee and H. J. Weiss. Brown University. Graduate Division of Applied Mathematics, Providence, R. I. Sep 1951. 8p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.25, Photostat $1.25. PB 112726

Contract Nord 11496
1. Polymers - Stresses 2. Plastics, Methacrylic - Tensile properties 3. Equations, Linear 4. PA TM-1/8.

Reports on plastics in the tropics. 2: Polythene. Gt. Brit. Ministry of Supply. 1953. 18p photos, graph, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N.Y. $.50. PB 112760

S. O. code no. 70-673-2.
1. Plastics, Polyethylene - Tests - Gt. Brit.
2. Plastics, Polyethylene - Tropical deterioration - Gt. Brit.

Chemical Engineering

Formaldehyde and hexamethylenetetramine plant. Drawings of catalyst oven and gas cooler, and of evaporator. I. G. Farbenindustrie, A. G., Ludwigshafen, Ger. n.d. 14f drawings only (Legends in German) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Enlargement Print $3.75. PB 112600

Listed in BIOS Final report 1331, p. 10 (PB 79300).
1. Formaldehyde - Production - Germany 2. Gas coolers - Design - Germany 3. BIOS FR 1331 LD 4. Micro BIOS DOCS 2348/937/109020/10 5. Micro BIOS DOCS 2348/951/13747/3 6. Micro BIOS FD 2562/46 frames 1-2.

Gaskühler (Gas cooler, formaldehyde plant). Wehrle-Werk A. G., Emmendingen, Ger. 1940.

10f drawing only (Legends in German) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.25, Enlargement Print $2.50. PB 112599

1. Formaldehyde - Production - Germany 2. Gas coolers - Design - Germany 3. Micro BIOS DOCS 2348/2836/XIX/9107C 4. Micro BIOS FD 3336/47 frame 1.

Miscellaneous Chemicals

Carbon monoxide in the earth's atmosphere, by J. H. Shaw and J. N. Howard. Ohio State University Research Foundation, Columbus, Ohio. Jul 1953. 87p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.75, Photostat $11.25. PB 112670

A discussion is given of the theoretical assumptions made in calculating the abundance and a detailed account of the experimental procedure is presented. Scientific report 1A-7. Contract no. AF 19(122)-65.

Electrets. New York University. Washington Square College of Arts and Science. Physics Dept. Final report under Contract AF 19(604)-407, Jun 1, 1953 to Sep 30, 1953, by J. H. Rohrbaugh. Oct 1953. 116p drawings, diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $4.75, Photostat $15.00. PB 112749

For reports no. 1, 4 see PB 108219, 110942. Final report is in large part, the doctoral dissertation of Mr. Robert Gerson.
1. Electrets - Electrical properties 2. Electrets - Manufacture 3. Carnauba wax - Dielectric properties.

Experimental determination of the stress-strain relations for polymers, by E. H. Lee and H. J. Weiss. Brown University. Graduate Division of Applied Mathematics, Providence, R. I. Sep 1951. 5p diagr, graph Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.25, Photostat $1.25. PB 112727

Contract Nord 11496.
1. Polymers - Stresses 2. Polymers - Creep tests 3. PA TM-2/5.

Kinetic approach to collision processes in gases. Part I: Small amplitude processes in charged and neutral one component systems, by P. L. Bhatnagar, E. P. Gross, and Max Krook. Harvard University. Harvard College Observatory. Solar Dept. Sep 1953. 42p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 112671

Contracts N5ori-07801, N5ori-07858, AF 19(604)-146.

1. Gases - Kinetic theory 2. Gases, Ionized - Dynamics 3. Boltzmann equation 4. HU HCO SR 11.

Physical properties of fatty acids, glycerides, and derivatives: Technical literature and patents of the Southern Regional Research Laboratory, U.S. Dept. of Agriculture, compiled by W. S. Singleton. U. S. Bureau of Agricultural and Industrial Chemistry. Southern Regional Research Laboratory, New Orleans, La. Aug 1953. 34p Available from Southern Regional Research Laboratory, 2100 Robert E. Lee Boulevard, New Orleans 19, La. PB 112781

1. Fatty acids - Bibliography 2. Glycerides - Bibliography 3. Vegetable oils - Bibliography 4. AIC 361.

Research in the physical and structural analysis of high polymers by punched card methods, by Gilbert W. King. Little, Arthur D., Inc., Cambridge, Mass. May 1953. 50p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 112750

Final report under Contract N6-onr-228, T. O. II, Project NR 330-006.
1. Polymers - Physical properties 2. Polymers - Structure 3. Punched card system.

Right-angle molecular light scattering from gases, by Frank T. Gucker, Jr. and Sadhan Basu. Indiana. University. Dept. of Chemistry, Bloomington, Ind. Scientific report no. 1, period 1 Jan 1951-15 May 1953, under Contract AF 19(122)-400. Jul 1953. 12p drawing, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112674

This report describes measurements of right-angle scattering, using a parallel beam of light, either unpolarized, vertically polarized or horizontally polarized, and measuring the intensity and state of polarization of the background light, as well as the scattered light when the cell is filled with gas, to allow the determination of the vertically and horizontally polarized components of the light scattered by the gas alone.

Some spectroscopic studies of rotational isomerism, by R. E. Kagarise and L. W. Daasch. U. S. Naval Research Laboratory. Nov 1953. 20p graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.50. PB 111270

Spectroscopic studies of the phenomenon of rotational isomerism in sym-dibromotetrafluoroethane (CF_2Br-CF_2Br), sym-difluorotetrachloroethane ($CFCl_2$-$CFCl_2$), and oxalyl chloride (COCl-COCl) have been performed. NRL Report 4248.

Transmission data for the far infrared bands of carbon dioxide and ozone, by W. M. Elsasser and J. I. King. Utah. University. Dept. of Physics, Salt Lake City, Utah. Sep 1953. 43p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 112673

Stratospheric radiation technical report no. 9. Contract no. AF 19(122)-392. Page 24 is blank.
1. Carbon dioxide - Spectrographic analysis 2. Ozone - Spectrographic analysis 3. Infrared radiation - Transmission.

ELECTRICAL MACHINERY

Communication Equipment

Certain problems in the field of absorption of microwave energy in the atmosphere, by Edwin K. Gora. Providence College, Providence, R. I. Quarterly progress report no. 1 under Contract no. AF 19-(604)-831 for period June 22-Sep 30, 1953. Oct 1953. 15p table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112611

Radio waves - Absorption 2. Impact - Theory 3. Van Vleck - Weisskopf theory.

Development of lightning protective methods and related radio interference reduction for aircraft. Lightning and Transients Research Institute, Minneapolis, Minn. Under Contract AF 18(600)-74, by M. M. Newman and J. D. Robb. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Interim report, part 1, no. 1 for period Nov 1951 to Jan 1952. Feb 1952. 35p photos, drawings, diagrs, graph, table Microfilm $2.25, Photostat $5.00. PB 112595

Appendix I: Static-discharge protection for transport aircraft. Part I: Protection from discharges to aircraft antennae, by M. M. Newman. For presentation at the SAE annual meeting, Jan 14-18, 1952. - Appendix II: Theory of the shielding of radio waves at low and medium frequencies, by E. L. Hill.
1. Airplanes - Lightning protection 2. Antennas, Aircraft - Lightning protection 3. Radio waves - Shielding - Theory 4. LTRL T 201.

7th interim report, I-3, May 1952-July 1952. Aug 1952. 37p photos, diagrs, graphs Microfilm $2.25, Photostat $5.00. PB 112597

Appendix I: Note on the shielding of radio waves by conducting coating, by E. L. Hill.
1. Airplanes - Lightning protection 2. Antennas, Aircraft - Lightning protection 3. Radio waves - Shielding - Theory 4. LTRL T 222.

Lectures on communication theory, by D. Gabor. Massachusetts Institute of Technology. Research Laboratory of Electronics. Apr 1952. 49p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 112818

Contract no. DA36-039-sc-100. Dept. of the Army project no. 3-99-10-022. Signal Corps project no. 8-102 B-O.
1. Communications - Theory 2. Speech - Analysis 3. Signals - Transmission 4. MIT RLE TR 238 5. SIG Contract DA36-039-sc-100.

Radio-interference measurements and modifications on Continentalair oxygen tent (U. S. stock no. 3-820-220), by Paul Wohl and R. Scott Fraser. Electro-Search, Philadelphia, Pa. Oct 1953. 25p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112766

Contract NObsr-63199.
1. Oxygen systems - Tests 2. Oxygen systems - Interference 3. Radio interference - Measurement.

Electronics

Analysis and synthesis of distributed amplifiers with ladder network, by D. O. Pederson. Stanford University. Electronics Research Laboratory, Stanford, Calif. May 1951. 126p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $5.00, Photostat $16.25. PB 112624

Technical report no. 34, prepared under Contract N6onr-251, consolidated task no. 7(NR-078-360).
1. Amplifiers, Distributed - Design 2. Amplifiers - Gain measurements 3. Networks, Electrical - Design 4. SU ERL TR 34.

Antenna system for experimental long-range radar, by John Ruze. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Electronics Research Directorate, Cambridge, Mass. Jul 1953. 32p photos, drawings, diagrs (1 fold), graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 112805

The electrical design of a high-gain, electrically steerable broadside antenna for long-range radar is described. The report discusses the design of phasing rings, the power distribution system, the rotating joint, and other system components. Experimental pattern data are given, as are impedance data on all major components. AAF CRC TR 53-24.

Asymptotic evaluation of the field at a caustic, by Irvin Kay and Joseph B. Keller. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Aug 1953.

23p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75.
PB 112751

Research report no. EM-55. Contract no. AF 19(122)-42.
1. Electric fields - Mathematical analysis 2. Optics, Geometrical 3. Waves, Electromagnetic - Theory 4. Mathematical equations and solutions 5. NYU RR EM-55.

Cooling methods for electronic equipment in general. Ohio State University Research Foundation, Columbus, Ohio. Under Contract no. W33-038-ac-14987. Project 269. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Interim engineering report no. 7, Apr 1-Apr 30, 1947. Discussion of methods of removing heat from electronic equipment, including endothermic processes, plating processes and notes on heat transfer to boiling liquids, by S. R. Beitler and R. H. Lynch. May 1947. 11p tables Microfilm $1.75, Photostat $2.50. PB 112823

1. Electronic equipment - Cooling 2. Heat - Transference 3. Liquids - Heat transference.

Interim engineering report no. 9, June 1, 1947 to June 30, 1947. Information on evaporative cooling of electronic components and status of survey on cooling problems, by S. R. Beitler and R. H. Lynch. Jul 1947. 5p. Microfilm $1.25, Photostat $1.25. PB 112822

1. Electronic equipment - Cooling 2. Cooling systems.

Interim engineering report no. 12, Sep 1 to Sep 30, 1947. Status on construction of test apparatus and temperature distribution tests in DC550 silicone fluid with natural convection and agitation, by S. R. Beitler and R. H. Lynch. Oct 1947. 7p. Microfilm $1.25, Photostat $1.25.
PB 112826

1. Electronic equipment - Cooling 2. Heat - Transference - Measuring equipment 3. Liquids - Heat transference - Tests 4. DC550 (Silicone fluid).

Interim engineering report no. 13, Oct 1-31, 1947. Specific heat, boiling and temperature distribution tests with DC550 silicone fluid, by S. R. Beitler and R. H. Lynch. Nov 1947. 13p drawings, graph Microfilm $1.75, Photostat $2.50.
PB 112533

1. Electronic equipment - Cooling 2. DC550 (Silicone fluid) 3. Silicones - Thermal properties 4. Silicones - Specific heat 5. Mixers - Design.

Interim engineering report no. 16, Jan 1 to Jan 31, 1948. Film coefficients up to 600°F using DC550 silicone fluid with agitation, by S. R. Beitler and R. H. Lynch. Feb 1948. 8p graph, table Microfilm $1.25, Photostat $1.25.
PB 112830

1. Electronic equipment - Cooling 2. DC550 (Silicone fluid) 3. Liquids - Heat transference 4. Convection (Free) - Heat transfer 5. Heat - Transference - Measuring equipment.

Interim engineering report no. 18, March 1-31, 1948, by R. H. Lynch and S. R. Beitler. May 1948. 11p photos, fold drawing Microfilm $1.75, Photostat $2.50. PB 112824

Title page missing.
1. Electronic equipment - Cooling 2. Tanks, Temperature bath - Design 3. Heat - Transference - Measuring equipment.

Interim engineering report no. 19, Apr 1-Apr 30, 1948, by V. Robinson, R. H. Lynch, S. R. Beitler. May 1948. 5p. Microfilm $1.25, Photostat $1.25. PB 112825

1. Electronic equipment - Cooling 2. Heat - Transference - Measuring.

Interim engineering report no. 22, July 1 to July 31, 1948. Study of methods of ultimate heat dissipation III, by W. Robinson, R. H. Zimmerman and S. R. Beitler. Aug 1948. 71p diagrs, graphs, table Microfilm $3.50, Photostat $10.00.
PB 112833

1. Electronic equipment - Cooling 2. Cooling systems, Compressed air 3. Heat - Transference - Theory.

Interim engineering report no. 27, Feb 1 to Mar 31, 1949, by W. Robinson. Mar 1949. 5p. Microfilm $1.25, Photostat $1.25. PB 112394

1. Electronic equipment - Cooling 2. Heat exchangers - Design 3. Heat - Transference - Measurement.

Interim engineering report no. 28, Apr 1 to May 31, 1949, by W. Robinson. Jun 1949. 4p Microfilm $1.25, Photostat $1.25. PB 112831

1. Electronic equipment - Cooling 2. Heat - Transference - Measuring equipment.

Interim engineering report no. 32, Dec 1, 1949 to Jan 31, 1950, by W. Robinson. Feb 1950. 6p Microfilm $1.25, Photostat $1.25. PB 112827

1. Electronic equipment - Cooling 2. Heat - Transference - Measuring equipment 3. Tubes, Electron - Tests.

Report no. 22a. Calculation of rates of heat dissipation from electronic components by free and forced convection (Review of available information and suggestions for needed experimentation), by R. B. Gelbard, W. Robinson and S. R. Beitler. Aug 1948. 36p graphs, tables Microfilm $2.25, Photostat $5.00. PB 112539

Some pages may not reproduce well.
1. Electronic equipment - Cooling 2. Heat -

Diffusion 3. Convection (Free) - Heat transfer 4. Convection (Forced) - Heat transfer 5. Mathematical equations and solutions.

Report no. 22b. Experimental study of free convection heat transfer in a closed vertical annular cylindrical air space with heated internal surface and cooled external surface, by R. H. Lynch, W. Robinson, S. R. Beitler. Aug 1948. 17p fold drawing, graphs, tables Microfilm $1.75, Photostat $2.50. PB 112832

1. Electronic equipment - Cooling 2. Heat - Transference - Measuring equipment 3. Convection (Free) - Heat transfer.

Report no. 24a. Weight, power and space requirements for typical cooling systems, employing heat rejection to an aircraft fuel system I (Internally air-cooled equipment), by R. H. Lynch and W. Robinson. Oct 1948. 27p diagrs, tables Microfilm $2.00, Photostat $3.75. PB 112835

1. Electronic equipment - Cooling 2. Cooling systems - Design 3. Heat - Transference - Theory.

Report no. 28a. Weight, power and space requirements for typical cooling systems, employing heat rejection to an aircraft fuel system II (Non-evaporative and evaporative liquid cooling systems), by R. H. Lynch and W. Robinson. Jun 1949. 26p diagrs, graphs, tables Microfilm $2.00, Photostat $3.75. PB 112829

1. Electronic equipment - Cooling 2. Cooling systems - Design 3. Coolants.

Report no. 30a. Study of compressors for compressed ram-air systems, by R. H. Zimmerman. Oct 1949. 36p graphs Microfilm $2.25, Photostat $5.00. PB 112834

1. Electronic equipment - Cooling 2. Cooling systems, Compressed air 3. Compressors, Air 4. Compressors, Axial - Performance 5. Compressors, Centrifugal - Performance.

Report no. 30b. Cooling systems for electronic equipment utilizing expendable evaporative coolants, by W. Robinson and L. S. Han. Oct 1949. 46p drawings, graphs (part fold), tables Microfilm $2.50, Photostat $6.25. PB 112828

1. Electronic equipment - Cooling 2. Coolants - Tests 3. Heat exchangers - Design 4. Cooling systems - Controls.

Development and application of automatic assembly technique for miniaturized electronic equipment. Stanford Research Institute, Stanford, California. Under Contract no. AF 18(600)-141. Continuation of Contract no. AF 33(038)-18976 (SRI project 413). Order separate parts described below from the Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Interim engineering report no. 4, covering period 1 Nov 1952 to 31 Jan 1953, by E. R. Gamson, F. M. Hom, R. F. Newton. Feb 1953. 53p photos, drawings, graph, tables Microfilm $2.75, Photostat $7.50. PB 112621

1. Electronic equipment, Miniaturized - Assembling methods 2. Machines, Assembling - Design 3. SRI Proj 597, Report no. 4.

Interim engineering report no. 5, covering period 1 Feb to 30 Apr 1953, by E. R. Gamson, F. M. Hom, R. F. Newton. May 1953. 73p photos, drawings (part fold), diagrs, graph, tables (part fold) Microfilm $3.50, Photostat $10.00. PB 112622

1. Electronic equipment, Miniaturized - Assembling methods 2. Etching, Electrolytic 3. Soldering - Methods 4. Machines, Assembling - Design 5. SRI Proj 597, Report no. 5.

Digital electronic data recording system for pulse-time telemetering, by Gilbert O. Hall, edited by Robert M. Slavin. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Geophysics Research Directorate, Cambridge, Mass. Feb 1953. 47p photos, diagrs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $1.50. PB 111294

The DIGER system provides a means of producing at high speed a sample-by-sample record of the telemetered information in digital form and at a slower rate, printing the values of voltages recorded. The system has been designed to handle two channels of pulse-time telemetering. The delay of a telemeter pulse, which is a measure of the voltage telemetered, is converted into a train of pulses. These pulses are counted by a digital chain and the coded result is displayed on neon lights which are photographed. This process is repeated at the repetition rate of the system (569 pulses per second). The photographic record is then scanned by photoelectric means, decoded, and the result printed on electric typewriters. Instrumentation for geophysical research no. 1. AAF CRC TR 53-1.

Effect of atmospheric conditions on the propagation characteristics of electromagnetic waves in the microwave region. Georgia Institute of Technology. State Engineering Experiment Station, Atlanta, Ga. Under Contract no. W28-099-ac-175. Project no. 109-8. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Progress report no. 19, by F. E. Lowance, J. E. Boyd, R. A. Martin, and Catherine Yoe. Aug 1948. 67p photos, diagr, graphs Microfilm $3.00, Photostat $8.75. PB 112569

1. Waves, Electromagnetic - Propagation 2. Instruments, Meteorological - Design 3. Cameras, Recording - Design 4. Meteorographs, Captive balloon - Design.

Progress report no. 20, by T. E. Lowance, J. E. Boyd, R. A. Martin, and Catherine Yoe. Nov 1948. 104p photos, diagr, graphs, tables Microfilm $4.50, Photostat $13.75. PB 112570

1. Waves, Electromagnetic - Propagation
2. Radar - Signals - Meteorological effects
3. Radar - Bands S 4. Radar - Bands X
5. Radar - Bands L.

Progress report no. 21, by J. E. Boyd, R. A. Martin, Catherine Yoe, and F. B. Brown. Feb 1949. 35p map, graphs, tables Microfilm $2.25, Photostat $5.00. PB 112571

1. Waves, Electromagnetic - Propagation
2. Radar - Signals - Meteorological effects
3. Radar - Bands S 4. Radar - Bands S
5. Radar - Bands X.

Progress report no. 22, by J. E. Boyd, F. B. Brown, and Catherine Yoe. May 1949. 15p Microfilm $1.75, Photostat $2.50. PB 112572

1. Waves, Electromagnetic - Propagation
2. Radar - Signals - Meteorological effects.

Supplementary report no. 1, by J. E. Boyd, Catherine Yoe, F. D. Stringer, C. F. Kent. Aug 1949. 47p graphs, tables Microfilm $2.50, Photostat $6.25. PB 112573

1. Waves, Electromagnetic - Propagation
2. Radar - Bands L 3. Radar - Bands S
4. Radar - Bands 5. Radio waves - Meteorological effects.

Field strength determination by ray tracing techniques for horizontally stratified layers, by B. M. Fannin. Texas. University. Electrical Engineering Research Laboratory. Aug 1953. 141p graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $5.75, Photostat $18.75. PB 112748

Radio field strength contours, based upon ray theory computations, are presented for sixty trilinear profiles of refractive index. The contour configurations fall into groups possessing distinguishing characteristics that are summarized and discussed. A development of the principal concepts and techniques involved in ray theory is given in the appendixes. Contract AF 19(604)-494. Report no. 6-04. Appendix A. Field-strength-contour diagrams. - Appendix B. Development of the ray theory and the corresponding formulas. - Appendix C. Formulas for a multilinear refractive-index profile. - Appendix D. Formulas for a profile with rounded corners. - Appendix E. Formulas for the field in the hole and at a caustic. - Appendix F. Summary of the literature reporting propagation results.

Hand fabrication technique and photographic processing for modular design of electronics. U. S. National Bureau of Standards. Order separate parts described below as indicated giving PB number of each part ordered.

Vol. III, by Harold S. Horiuchi and Russell Burroughs. Jan 1954. 35p photos, drawings, diagr, table Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $2.00. PB 111277

Project formerly known as Project Tinkertoy.
1. Electronic equipment - Design 2. Electronic equipment - Production.

Model jig 1. Aug 1952. 12 drawings Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $1.25. NBS 36. PB 111277s

Contents: 5532-C-0903. Assembly. - B-0904. Rear support. - B-0905. Ways. - B-0906. Sliding support. - B-0907. Front support. - B-0908. Wheel. - B-0909. Wheel grip - B-0910. Front shaft. - B-0911. Bushing. - B-0912. Bumpers. - B-0913. Rear shaft. - B-0914. Fork.

Screen press. Aug 1952-Dec 1953. 26 drawings Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $3.40. NBS 29. PB 111277s2

Contents: 5532-X-0930. Assembly. - C-0931. Base. - C-0932. Frame. - B-0933. Lower bracket. - B-0934. Arm. - B-0935. Nut. - B-0936. Bushing. - B-0937. Base bracket. - B-0938. Shaft. - B-0939. Stop plate. - B-0940. Stop nut. - B-0941. Stop screw. - B-0942. Adjusting screw. - B-0943. Adjusting stand. - C-0944. Guide plate. - C-0945. Location plate. - C-0946. Rotation plate. - B-0947. Front slide. - B-0948. Rear slide. - B-0949. Plug. - B-0955. Upper bracket. - B-0956. Spacer. - B-5647. Spring. - B-5648. Spring - B-5649. Link. - B-5650. Clamp.

Drying rack oven. Jun 1953. 1 drawing Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.35. PB 111277s3

NBS 34. Contents: 5532-D-5638.

Module assembling fixture and soldering. Jan 1952-Oct 1953. 59 drawings Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $7.55. PB 111277s4

All drawings are numbered F861C26. Have no. 1-4, 8-9, 16-19, 22-23, 29-33, 38-39, 44-45, 51-55, 57-59, 64, 66-86, 88-89, 98, 116, 122 as listed on assembly sheet.

Hand module assembling jig. Jun-Jul 1953. 6 drawings Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.60. PB 111277s5

NBS 38. Contents: 5532-B-5639. Assembly. - B-5640. Mounting block. - B-5641. Mounting block. - B-5642. Guide, wafer. - B-5643. Base. - B-5644. Guide, wire.

Tape press, resistor. Aug 1952. 9 drawings Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.95. PB 111277s6

NBS 35. Contents. 5532-C-0920. Assembly. - 0921. Support. - B-0922. Base. - B-0923. Block, Upper. - B-0924. Block, lower. - B-0925. Shaft. - B-0926. Rod. - B-0927. Pad, rubber. - B-5259. Handle.

Riser wire cutter. Oct 1953. 8 drawings Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $1.10. PB 111277s7

NBS 33. Contents: 5532-D-5624. Assembly. - B-5625. Knife. - B-5626. Guide post. - B-5627. Stop, brass. - B-5628. Spacer bolt. - B-5629. Knife support block. - B-5630. Foot, machine screw. - C-5631. Base plate.

Module wire trimmer. Jul 1953. 2 drawings Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $1.10. PB 111277s8

NBS 32. Contents: NBS-32. List of drawings. - 5532-D-5637. Assembly. - X-5636. Details.

Special module assembly jig. Sep 1953. 4 drawings Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.45. PB 111277s9

NBS 37. Contents: 5532-C-5632. Assembly. - B-5633. Base. - B-5634. Upper guide. - B-5635. Lower guide.

Hand press, resistor tape applicator. Nov 1953. 2 drawings Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.90. PB 111277s10

NBS 52. Both drawings are numbered F861C42. Sheet 1 is assembly. Sheet 2 contains drawings 1-8.

Tube socket assembly jig. Oct 1953. 1 drawing Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.15. PB 111277s11

NBS 51. Drawing no. 5532-C-5646: Hand model.

Connector, miniature tube pin contact. Aug 1952. 1 drawing Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.15. PB 111277s12

NBS 53. Drawing no. 5532-C-0957. Supersedes 5532-B-83.

Connector retainer (fired). Dec 1952. 1 drawing Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.35. PB 111277s13

NBS 54. Drawing no. 5532-D-5268: 7 pin. Supersedes 5532-B-0115, C-0974, C-5084.

Ceramic plate fired). Sep 1953. 1 drawing Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.15. PB 111277s14

NBS 55. Drawing no. 5532-C-5618. Wafer, plain.

Ceramic plate (fired). Sep 1953. 1 drawing Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.15. PB 111277s15

NBS 56. Drawing no. 5532-C-5619: Wafer, tube socket.

Ceramic plate (fired). Dec 1953. 1 drawing Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.15. PB 111277s16

NBS 57. Drawing no. 5532-C-5620: Wafer, potentiometer.

Component test jig, switch type. Dec 1953. 2 drawings Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.70. PB 111277s17

NBS 58. Contents: 5532-D-5562. Assembly. - D-5663. Wiring diagram.

Component test jig. Nov 1953. 1 drawing Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.35. PB 111277s18

NBS 59. Drawing no. 5532-D-5659.

Removable bridge head. Nov 1953. 3 drawings Available from Library of Congress, Publication Board Project, Washington 25, D. C. Osalid $.40. PB 111277s19

Drawings connected with PB 111277s17 and s18. Contents: 5532-C-5656. Board-finger assembly. C-5657. Board-finger. - B-5658. Finger contact.

Harmonic analysis of rectangular FM pulses, by H. M. James. Massachusetts Institute of Technology. Radiation Laboratory. May 1945. 13p diagr Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112721

Contract OEMsr-262, NDRC Div 14.
1. Radio waves - Frequency measurement 2. Radio waves - Theory 3. Fourier analysis 4. MIT Rad Lab 43 5. NDRC Div 14.

Instrumentation for the observation of long delay echoes at 150 kc/s, by R. L. Schrag. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Sep 1953. 95p photos, diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $4.25, Photostat $12.50. PB 112691

Contract no. AF 19(122)-44.

1. Waves, Electromagnetic - Reflection 2. Electronic equipment - Design 3. Radio waves - Echoes - Measuring equipment 4. PSC IRL SR 50.

Interpretation of the fluctuating echo from randomly distributed scatterers. McGill University. MacDonald Physics Laboratory. "Stormy Weather" Research Group. Contract no. AF 19(122)-217. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Part 1, by J. S. Marshall and Walter Hitschfield. Oct 1951. 67p diagrs, graphs Microfilm $3.00, Photostat $8.75. PB 112601

1. Waves, Electromagnetic - Reflection - Theory 2. Waves, Electromagnetic - Scattering - Theory 3. Radar - Signals - Reflection 4. Probability - Theory.

Part 2, by P. R. Wallace. Dec 1951. 42p diagr, graph, tables Microfilm $2.50, Photostat $6.25. PB 112602

The radar echo from randomly distributed scatters has been studied theoretically according to the method of Markoff. The probability distribution of echo intensity is determined by a calculation of the random-walk type. The following results have been obtained: a somewhat sharper definition of mean intensity can be obtained by continuous averaging than by averaging echoes from independent scattering regions only. The degree of independence of signals obtained from the same scatterers with varying frequency has been determined. Finally, a simple picture has been found to illustrate the development of the echo in time; this forms a basis for autocorrelation studies. Research report MW-6.

Ionospheric propagation of plane waves, by Herbert B. Keller. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Aug 1953. 45p diagr, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 112782

Research report EM-56. Contract no. AF 19(122)-42.
1. Waves, Electromagnetic - Propagation - Theory 2. Waves, Electromagnetic - Reflection - Theory 3. Ionosphere - Research 4. NYU RR EM-56

Methods of measuring dielectric constants based upon a microwave network viewpoint, by H. M. Altschuler and A. A. Oliner. Polytechnic Institute of Brooklyn. Microwave Research Institute, Brooklyn, N. Y. Sep 1953. 19p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112780

Dielectric samples are represented by network four-poles whose admittance determinant is related simply to the dielectric constant. Four specific measurement procedures are presented which incorporate the precision as well as the invariance aspects. Research report R-338-53, PIB-273. Contract AF 19(604)-890. PIB-273.

Multiple scattering of waves by planar random distributions of parallel cylinders and bosses, by Vic Twersky. New York University. Institute of Mathematical Sciences. Division of Electromagnetic Research. Oct 1953. 58p diagr, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $7.50. PB 112784

The two-dimensional problem of multiple scattering of a plane wave by a planar 'randon' distribution of parallel cylinders is considered. The maximum effects of multiple scattering are discussed, and practical expressions for the reflection coefficients and differential scattering cross sections are obtained. Research report no. EM-58. Contract no. AF 19(122)-42. NYU RR EM-58.

On the electromagnetic field equations in the ionosphere, by Herbert B. Keller. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Sep 1953. 19p diagr Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112783

This paper consists of two notes on the equations governing the propagation of electromagnetic waves in the ionosphere. In Part I the tensor properties of the ionosphere are derived by a method due to van der Wyck. Part II shows the equivalence of various forms of the propagation equations. Research report EM-57. Contract no. AF 19(122)-42. NYU RR EM-57.

Power gain in feedback amplifiers, by Samuel J. Mason. Massachusetts Institute of Technology. Research Laboratory of Electronics. Aug 1952. 20p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112632

Optimum passive source and load impedances are found for an arbitrary feedback amplifier, to give maximum power gain at every real frequency, subject to a specified stability margin. Contract no. DA36-039-sc-100. Dept. of the Army project no. 3-99-10-022. Signal Corps project no. 8-102 B-O.

Propagation of 3, 10 and 23 cm waves over a 50-mile optical path, by J. E. Boyd and F. B. Brown. Georgia Institute of Technology. State Engineering Experiment Station, Atlanta, Ga. Mar 1950. 72p photo, fold map, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.50, Photostat $10.00. PB 112574

Contract no. W28-099-ac-175, Project no. 109-8, Technical report no. 1.
1. Waves, Electromagnetic - Propagation

2. Radio waves - Meteorological effects 3. Radar - Bands L 4. Radar - Bands S 5. Radar - Bands X.

Radio equipment for microwave propagation studies at wave lengths of 3, 10 and 23 centimeters, by Roy A. Martin. Georgia Institute of Technology. State Engineering Experiment Station, Atlanta, Ga. May 1950. 44p photos, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 112575

Contract no. W28-099-ac-175, Project no. 109-8, Technical report no. 2.
1. Radar - Bands L 2. Radar - Bands S 3. Radar - Bands X 4. Radar equipment - Design.

Rapid measurement of impedance and admittance, by B. Salzberg and J. W. Marini. U. S. Naval Research Laboratory. Dec 1953. 16p diagrs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.50. PB 111309

A method is described for direct, rapid, and simultaneous measurement of the real and quadrature components of a driving-point or transfer impedance and admittance over a wide and continous range of frequency. Basically, the method employs a mixer which derives its signal and local oscillator voltages from the voltage across and current through the unknown impedance, respectively. With suitable modifications of detail, the method appears to be usable from acoustic to microwave frequencies. NRL R 4241.

Relative power of radar signals received from the far side of clouds. Florida. Engineering and Industrial Experiment Station, Gainesville, Fla. Under Contract no. W28-099-ac-153. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Progress report no. 17, for period 1 Dec 1947 to 29 Feb 1948, by Marinus H. Latour. Feb 1948. 23p drawings, diagrs, graphs Microfilm $2.00, Photostat $3.75. PB 112566

Appendix: Drop-size and water-content investigation, by O. L. Wadkins, Jr.
1. Radar - Signals - Attenuation 2. Radar - Signals - Measurement 3. Radar - Signals - Reflection 4. Radar - Meteorological effects 5. Radar - Targets - Detection - Effects of clouds 6. Radar - Echo lines - Effect of clouds 7. Clouds - Water content 8. Raindrops - Measurement.

Progress report no. 18, for period 1 Mar to 30 Apr 1948, by Marinus H. Latour. Apr 1948. 20p graphs, tables Microfilm $1.75, Photostat $2.50. PB 112567

Appendix: Drop-size and water-content investigation, by O. L. Wadkins, Jr.
1. Radar - Signals - Attenuation 2. Radar - Signals - Measurement 3. Radar - Signals - Reflection 4. Radar - Meteorological effects 5. Radar - Target - Detection - Effect of clouds 6. Radar - Echo lines - Effect of clouds 7. Clouds - Water content 8. Raindrops - Measurement.

Progress report no. 19, for period 1 May 1948 to 31 Jul 1948, by Marinus H. Latour. Jul 1948. 66p diagrs, maps (3 fold), tables Microfilm $3.00, Photostat $8.75. PB 112568

Appendix: Surface rainfall analysis, by Donald C. Bunting. - First gusts associated with thunderstorms, by Donald C. Bunting.
1. Radar - Signals - Attenuation 2. Radar - Signals - Measurement 3. Radar - Signals - Reflection 4. Radar - Meteorological effects 5. Radar - Targets - Detection - Effects of clouds 6. Radar - Echo lines - Effects of clouds 7. Clouds - Physical properties 8. Rain and rainfall - Tables 9. Cameras, Recording - Design 10. Photography, Radar scope.

Scattering of plane electromagnetic radiation by an infinite cylindrical mirror, by Robert D. Turner. Harvard University. Cruft Laboratory. May 1953. 31p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 112836

Using a variational principle in conjunction with a suitable trial function, expressions for the far-zone field and scattering cross section of a cylindrical mirror excited by a plane wave are obtained that are valid over a wide range of frequencies. The plane wave is polarized so that the electric vector is parallel to the axis of the mirror. Contract N5ori-76, Task order no. 1, NR-078-011. HU CL TR 161.

Study of the generation and detection of electromagnetic waves in the millimeter wave region. Report no. 20, Jul 1, 1953 to Sep 30, 1953, under Contract AF 19(122)-4, by J. H. Rohrbaugh. New York University. Washington Square College of Arts and Science. Physics Dept. Oct 1953. 32p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 112746

Qualitative transmission data along with approximate indices of refraction are given for a number of liquids. Detailed design data for a modified spectrometer also appear.

Summary of modular design of electronics and mechanized production of electronics. Vol. 1, by Robert L. Henry and Herbert H. Rosen. U. S. National Bureau of Standards. Jan 1954. 26p photos, diagr Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $2.00. PB 111275

Project formerly known as Project Tinkertoy.
1. Electronic equipment - Design 2. Electronic equipment - Production 3. Project Tinkertoy, Vol. I

Synthesis of distributed amplifiers for prescribed amplitude response, by A. Donald Moore. Stanford University. Electronics Research Laboratory, Stanford, Calif. Sep 1952. 121p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $5.00, Photostat $16.25. PB 112625

Technical report no. 53, prepared under Contract N6onr-251, consolidated task no. 7(NR-078-360).
1. Amplifiers, Distributed - Design 2. Networks, Electrical - Design 3. Networks, Electrical - Mathematical analysis 4. SU ERL TR 53.

Synthesis of lumped-element circuits for optimum transient response, by George W. C. Mathers. Stanford University. Electronics Research Laboratory, Stanford, Calif. Nov 1951. 153p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $6.00, Photostat $20.00. PB 112623

Technical report no. 38 prepared under Contract N6onr-251, consolidated task no. 7(NR-078-360).
1. Circuits, Radio frequency - Synthesis 2. Transient electrical phenomena 3. Approximate computations 4. Pade theory (Approximation) 5. Networks, Pulse-forming - Synthesis 6. Transmission systems, Electromagnetic 7. SU ERL TR 38.

Tandem slit diffraction measurements, by L. R. Alldredge. Harvard University. Cruft Laboratory. May 1953. 35p photos, diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 112802

Contract N5-ori-76, Task order no. 1, NR-078-011.
1. Waves, Electromagnetic - Diffraction 2. HU CL TR 176.

Transient wave analysis in linear time dependent material, by R. D. Glauz. Brown University. Graduate Division of Applied Mathematics, Providence, R. I. May 1952. 26p diagr, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112729

Contract Nord 11496.
1. Stresses - Theory 2. Wave propagation - Visco-elastic materials 3. Mathematical equations and solutions 4. Characteristic functions 5. Waves, Transient - Mathematical analysis 6. PA TR 2/25.

Wave propagation in rods of visco-elastic materials with three parameter models, by J. A. Morrison. Brown University. Graduate Division of Applied Mathematics, Providence, R. I. Aug 1953. 30p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112733

Contract Nord-11496.
1. Wave propagation - Visco-elastic materials 2. Materials, Visco-elastic - Stresses - Theory 3. Mathematical equations and solutions 4. PA TR-6.

Generators, Motors, Transmission

Development of subminiature high-temperature capacitors. Balco Research Laboratories, Newark, N. J. Interim engineering report no. 2 for the period 28 Apr 1953 to 28 July 1953 under Contract no. AF 33(038)-17190, supplemental agreement no. 3, by H. Mack Thaxton. Aug 1953. 30p fold graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112838

1. Capacitors, High temperature - Subminiature 2. Capacitors, Plastic dielectric 3. Teflon - High frequency resistance.

Evaluation of Wilcox type 99A radio transmitter, by Stuart A. Wagner. U. S. Air Force. Air Research and Development Command. Rome Air Development Center, Rome, N. Y. Jul 1953. 26p photos, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112756

1. Radio transmitters - Tests 2. 99A (Radio transmitter) 3. AAF RADC TR 53-4.

Large signal equivalent circuit for transistor static characteristics, by R. B. Adler. Massachusetts Institute of Technology. Research Laboratory of Electronics. Aug 1952. 24p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112634

1. Transistors - Circuits 2. Circuits, Equivalent.

Radio interference suppressors. Sprague Electric Co., North Adams, Mass. Progress report no. 10 under Contract no. AF 33(038)-9353 for the period 24 Apr 1953 to 24 July 1953. Jul 1953. 26p drawings, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112773

1. Cores, Magnetic - Materials 2. Capacitors, Metallized paper 3. Capacitors - Impedance 4. Radio interference - Filters.

Static exciter for aircraft AC generators, by D. G. Scorgie. U. S. Naval Research Laboratory. Nov 1953. 11p photos, diagrs, graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.50. PB 111280

The finger-type voltage regulator controlling a properly designed high-speed magnetic amplifier forms a unit which is extremely light, simple, and reliable. Experimental evidence gathered on this unit controlling a single-phase 8 KVA generator shows excellent transient and steady-state performance over a two-to-one speed range of the generator. The ten fingers of the regulator were at no time dissipating more than a total of 1/4 watt. NRL R 4251.

Miscellaneous

Development of ruggedized pencil triode. Radio Corporation of America. R. C. A. Victor Division, Harrison, N. J. Under Contract no. DA-36-039-sc-5554. Dept. of the Army project no. 3-19-03-023. Signal Corps project no. 27-322C. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Quarterly report no. 1, Apr 1, 1951 to June 30, 1951, by K. E. Hanft. Jul 1951. 11p drawings Microfilm $1.75, Photostat $2.50. PB 112617

1. Vacuum tubes, Triode - Design 2. Vacuum tubes - Testing equipment 3. Glass - Testing equipment 4. Tubes, Glass - Physical properties.

Quarterly report no. 2, July 1, 1951-Sep 30, 1951, by K. E. Hanft. Oct 1951. 12p photos, drawing Microfilm $1.75, Photostat $2.50. PB 112618

1. Vacuum tubes, Triode - Design 2. Vacuum tubes - Testing equipment 3. Tubes, Glass - Physical properties 4. Tubes, Ceramic.

Quarterly report no. 3, Oct 1, 1951 to Dec 31, 1951, by K. E. Hanft. Jan 1952. 17p photo, drawings, table Microfilm $1.75, Photostat $2.50. PB 112619

1. Vacuum tubes, Triode - Design 2. Vacuum tubes - Testing equipment 3. Flanges, Grid - Design 4. Testers, Torque.

Quarterly report no. 4, Jan 1, 1952 to Mar 31, 1952, by K. E. Hanft. Apr 1952. 12p photo, tables Microfilm $1.75, Photostat $2.50. PB 112620

1. Vacuum tubes, Triode - Design 2. Vacuum tubes - Testing equipment 3. Vacuum tubes - Tests 4. Flanges, Grid - Design.

Distortion reduction in amplifiers, by S. R. Swanson. U. S. Naval Research Laboratory. Oct 1953. 16p diagrs, graphs, table Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.50. PB 111302

Several methods of reducing distortion in broad-band amplifiers have been investigated with the aim of obtaining the desired reduction in distortion. These include push-pull operation, operation at a point of minimum distortion, and the use of feedback. Appendix: Experimental multicoupler and measuring system. NRL R 4233.

Measurements of the gas temperature of a low pressure r-f discharge in an ATR tube, by Irving Reingold and Kenton Garoff. U. S. Signal Corps Engineering Laboratories, Fort Monmouth, N. J. Oct 1953. 31p photos, diagrs, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 112718

An experimental investigation has been made of the manner in which the gas temperature resulting from an r-f sheath discharge is affected by the incident line power, gas fill, and Q of the cavity in which it is confined. Data are presented of the measured gas temperature as a function of line power for cavities of different Q. Qualitative results are submitted of the effectiveness of the gas and of the cavity in dissipating the heat resulting from the power absorbed by the cavity. Dept. of the Army project no. 3-19-03-032. Signal Corps project no. 323B. SCEL ER E-1126.

Microwave power comparator, by Kenneth C. C. Gunn and Kenneth O. Holmes. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Electronics Research Directorate, Cambridge, Mass. Jun 1953. 14p photos, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112806

A description is given of an S-band radio-frequency power comparator which was used to equalize, to a high degree of accuracy, several radio-frequency outputs of low power level. It consists of a hybird junction, a rapid switching arrangement to attenuate the two input powers alternately, and a detector on one of the output arms. AAF CRC TR 53-26.

Research services and investigations on subminiature multielement diodes and bistable elements for microtronic circuits. Battelle Memorial Institute, Columbus, Ohio. Seventh interim engineering report under Contract no. AF 19(604)-55, for period Mar 20, 1953 to June 20, 1953, by C. S. Peet, W. E. Bulman, M. Genser, E. B. Dale, and A. E. Middleton. Jun 1953. 64p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.00, Photostat $8.75. PB 112747

Appendix A. Resistivity data on zone-purified and zone-leveled germanium crystals. - Appendix B. Collector characteristics for first experimental two-emitter unit. - Appendix C. Collector characteristics for the second experimental two-emitter unit.
1. Vacuum tubes, Diode - Miniaturization 2. Crystals, Germanium - Electrical properties 3. Germanium - Preparation.

Scaling unit employing multi-electrode cold cathode tubes, by K. Kandiah. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Feb 1953. 31p diagrs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.15. PB 112716

S. O. code no. 70-674-1-54. HD. 849.
1. Scalers - Design - Gt. Brit. 2. Circuits, Discriminator - Cathode-driven - Gt. Brit. 3. Atomic power - Research - Gt. Brit. 4. AERE E' /R 1112.

Shop planning manual: Electric shop. U. S. Naval Shipyard, Charleston, S. C. Sep 1952. 59p photo, diagrs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $1.00. PB 111245

1. Industrial management 2. Ships - Electrical installations 3. Job analysis 4. Planning.

Study of a beam deflection tube approach toward obtaining non-linear characteristics. Raytheon Manufacturing Co. Power Tube Division, Waltham, Mass. Third quarterly report, Aug 26-Nov 26, 1953, under Contract no. AF 19(122)-17, by R. C. Hergenrother and Robert McCowan Unger. Nov 1953. 9p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.25, Photostat $1.25. PB 112800

1. QK 329 (Tube) 2. Vacuum tubes, Square-law.

Theory of the traveling wave tube. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Final report under Contract no. AF-19(122)-1, by Morris Kline. Oct 1953. 29p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112752

Bibliography: p. 16-27.
1. Tubes, Traveling wave - Theory 2. Tubes, Traveling wave - Theory - Bibliography.

UHF filtering networks. Lehigh University. Electrical Engineering Dept., Bethlehem, Pa. Final report of technical progress under Contract no. AF 19(122)-70. by D. E. Mode. Oct 1953. 54p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $7.50. PB 112700

1. Filters, Ultra high frequency - Design.

FOOD AND KINDRED PRODUCTS

Care of the trawler's catch. Gt. Brit. Dept. of Scientific and Industrial Research. Food Investigation Board. 1953. 3p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.25. PB 112712

Advisory note no. 3 (Third edition). Reprinted from Food investigation leaflet no. 3 (Third edition) see PB 97492.
1. Fishing industry - Gt. Brit.

Investigation of some factors affecting the efficiency of hydraulic pressing of cottonseed, by Clyde L. Carter. Tennessee. Engineering Experiment Station, Knoxville, Tenn. Jun 1953. 93p photos, graphs, tables Available from Engineering Experiment Station, University of Tennessee, Knoxville, Tenn. PB 112659

Research conducted for the U. S. Dept. of Agriculture
1. Cottonseed - Pressing, Hydraulic 2. Cottonseed oil - Production 3. T EES B 18.

Notes on the preparation of smoked salmon, by C. L. Cutting and C. T. House. Gt. Brit. Dept. of Scientific and Industrial Research. Food Investigation Board. 1953. 3p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. Free. PB 112713

Advisory note no. 10.
1. Salmon - Smoking - Gt. Brit.

FUELS AND LUBRICANTS

Detection and determination of oxidation products in lubricants. Lehigh University, Bethlehem, Pa. Contract no. W-36-034-ORD-7593 and W-36-034-ORD-7702. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Part I: Literature review, instrument construction and testing, by E. J. Serfass. May 1951. 253p photos, drawings, diagrs, graphs (1 fold), tables Microfilm $9.00, Photostat $32.50. PB 112724

1. Lubricating oils - Oxidation 2. Lubricating oils - Analysis 3. Instruments, Measuring - Oxidation 4. Mass spectrometers - Design 5. Spectrophotometers, Infrared - Design 6. FALR 1019.

Vol. II: Preparation of oxidized products, experimental data, proposed scheme of analysis, by E. J. Serfass. May 1951. 187p photo, graphs, tables Microfilm $6.75, Photostat $23.75. PB 112723

1. Lubricating oils - Oxidation 2. Lubricating oils - Analysis 3. Mass spectrometers 4. Spectrophotometers, Infrared 5. FALR 1020.

Stability of jet (turbine) fuels in storage for Air Development Force. Shell Development Co., Emeryville, Calif. Final report under Contract no. AF-33(038)-7277 supplemental agreement no. 1, for period May 1 to Aug 15, 1951, by C. A. Cole and A. C. Nixon. Sep 1951. 42p graphs, tables (part fold) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 112579

Accelerated aging tests on four emergency fuels show them to be relatively stable with respect to

total gum formed, although significant quantities of insolubles comprised part of the total. Data are presented to confirm that iron and aluminum as container materials have no significant effect on fuel stability. A rapid filtration test designed for routine work to show relative filter clogging tendencies of fuels is discussed. Report no. S-13299.

HIGHWAYS AND BRIDGES

Filling and sealing of joints and cracks in concrete pavements. Presented at the 32d annual meeting, Jan 13-16, 1953. Highway Research Board. 1953. 40p diagrs, tables Available from Highway Research Board, 2101 Constitution Ave., N. W., Washington 25, D. C. $.60. PB 112815

1. Pavements, Concrete - Maintenance and repair 2. Pavements, Concrete - Joints 3. HRB Bul 78 4. NRC 276.

Know your highway costs. Highway control sections, a basic procedure for keeping adequate cost and operating records of the highway plant. Highway Research Board. 1953. 33p photos, maps, tables Available from Highway Research Board, 2101 Constitution Ave., N. W., Washington 25, D. C. $.60. PB 112799

1. Roads - Finance 2. Roads - Construction - Costs 3. HRB SR 13.

Structural effects of heavy-duty trailer on concrete pavement, a supplemental investigation to road test one-MD, presented at the 32d annual meeting, Jan 13-16, 1953, by Earl C. Sutherland and Harry D. Cashell. Highway Research Board. 1953. 35p photos, diagrs, graphs, table Available from Highway Research Board, 2101 Constitution Ave., N.W., Washington 25, D. C. $.60. PB 112699

National Research Council. Publication 283.
1. Pavements, Concrete - Loads 2. Pavements, Concrete - Tests 3. HRB SR 14 4. NRC 283.

Travel to commercial centers. Presented at the 32d annual meeting, Jan 13-16, 1953. Highway Research Board. 1953. 42p maps, graphs, tables Available from Highway Research Board, 2101 Constitution Ave., N. W., Washington 25, D. C. $.60. PB 112816

Contents: Travel to commercial centers of the Washington metropolitan area, by Gordon B. Sharpe. Factors in planning regional shopping centers, by Kenneth C. Welch.
1. Traffic surveys - Washington, D. C. 2. Shopping centers - Planning 3. HRB Bul 79 4. NRC 281.

INSTRUMENTS

Automatic atmospherics-analyzer, by Perrin F. Smith. Stanford University. Radio Propagation Laboratory, Stanford, Calif. Jul 1953. 57p photos, diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $7.50. PB 112669

This paper describes a complete system which records the received atmospheric waveform and simultaneously derives a plot of the time intervals between peaks of the waveform versus time. Technical report no. 1 under Contract AF 19(604)-795.

Far infrared spectroscopy from 100 to 700 microns, by Thomas King McCubbin, Jr. Johns Hopkins University, Baltimore, Md. Jul 1951. 55p drawings, diagr, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $7.50. PB 112735

This dissertation deals with investigations which the author has made in the region of the spectrum between 100 and 700 microns. It includes a history of millimeter waves and a discussion of far infrared instrumentation and techniques. Two far infrared grating spectrometers were constructed: a 3-inch f/1.5 instrument using crystal quartz optics, and a 12-inch f/1 instrument with autocollimating mirror optics. These spectrometers were used to study the optical properties of solid materials, sources of radiation, and the pure rotation spectra of HCl, NH3, H2O and H2S. The large spectrometer was capable of resolving spectral lines having a separation of less than 1 cm^{-1}. Thesis and progress report on work done in part under Contract N5-ori-166, Task order V. Some of the work was described in Journal of the Optical Society of America, vol. 40, p. 537 (1950).

Fellowship on computer components no. 347. Quarterly report no. 12, July 11, 1953 to Sep 30, 1953. Mellon Institute of Industrial Research, Pittsburgh, Pa. Oct 1953. 209p photos, drawings, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $7.50, Photostat $26.25. PB 112801

Contract no. CLNAF 19/122/-376. Contents: Sec. I. Bistable optical elements, by A. Milch. - Sec. II. Electroluminescence, by L. G. Lang. - Sec III. Photoconductivity and electroluminescence, by John Newgard. - Sec IV. - Electrical and optical properties of silicon carbide, by Wayne Sines, Jr. - Sec. V. Printed circuitry via xerography, by Martin N. Haller. - Sec VI. Circuit fabrication, capacitor sheets, by F. A. Schwertz and R. T. Steinback. - Sec VII. Saturable transformers as gates, by Burnham Moffat. - Sec. VIII. Digital-

to-analogue converter, by F. A. Schwertz and R. T. Steinback. - Sec. IX. Computer components research at Mellon Institute, by F. A. Schwertz. 1. Computers, Digital - Components 2. Computers, Digital - Design 3. Computers, Digital - Optical elements 4. Electroluminescence 5. Silicon carbide - Electrical properties 6. Silicon carbide - Optical properties.

I.B.M. C.P.C. techniques, by Harold D. Houser and Eugene A Trabka. Cornell Aeronautical Laboratory, Buffalo, N. Y. Apr 1953. 23p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112842

1. Computers, Digital 2. Calculators, Card programmed 3. CAL XA-771-G-1.

Impulse vacuum tube voltmeter, by Richard F. Blake. U. S. Naval Research Laboratory. Dec 1953. 10p photos, diagrs, graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.25. PB 111304

The Impulse Vacuum Tube Voltmeter is an instrument designed to supplement or replace oscillographic recording methods in the amplitude measurement of transient waveforms. The Impulse VTVM measures the positive peak of the applied waveform and holds this value on a front panel meter for a sufficiently long time to allow an observer to read and record. Data may be evaluated without time delay and successive test programing can be modified in accordance with previous results. The Impulse VTVM is especially useful for studies involving a calibration of waveform amplitude and it is expected to find applications in the measurement of transient electrical waveforms, explosion pressures, sonic or acoustical shockwaves, or the response of mechanical components to shock excitation. NRL R 4274.

Interpolation servomechanisms, by J. T. Fleck. Cornell Aeronautical Laboratory, Inc., Buffalo, N. Y. n.d. 24p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112841

The study which is discussed is intended to reveal an analytical method for determining transfer relations and stability criterion applicable to the type of interpolation and extrapolation device under discussion, to show how it is possible to establish design criteria from those transfer relations, and to point the way to methods for studying the effects of noise on these systems. Final report on Internal research project no. UA-624-P. CAL UA-624-P-1.

Research with crystal counters and scintillation counters: Photoconductivity in anthracene solutions, by L. W. Aukerman. Purdue University. Purdue Research Foundation, Lafayette, Ind. May 1953. 70p photos, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.00, Photostat $8.75. PB 112837

Measurements of photocurrent under various conditions of illumination and applied field were carried out on dilute solutions of anthracene in hexane using conventional electrometer techniques. Evidence is presented to illustrate the presence of ionic conductivity instead of electronic conductivity. Contract N7onr-39420.

Rocket-borne equipment for the measurement of infrared radiation, by Robert M. Slavin. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Geophysics Research Directorate, Cambridge, Mass. Feb 1953. 16p photos, diagrs, graph Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112577

The rocket-borne equipment described was designed to measure sky-background radiation in the region around 8000 Å and in the range from 3×10^{-12} to 3×10^{-7} watts/cm^2/sq deg. The CE25V-A/B phototube used as the sensing element is magnetically modulated to provide a 120-cps signal to the three-stage amplifier. Rectifier-cathode-follower output circuits provide voltages for telemetering to ground stations during rocket flight. Instrumentation for geophysical research no. 2. AAF CRC TR 53-2.

Theory of the D. C. electromagnetic flowmeter for liquid metals, by J. A. Shercliff. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1953. 29p diagrs, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.15. PB 112715

S. O. code no. 70-674-1-51. HD. 981.
1. Meters, Flow - Electromagnetic - Theory - Gt. Brit. 2. Metals, Liquid - Flow - Measuring equipment - Gt. Brit. 3. Atomic power - Research - Gt. Brit. 4. Turbulence - Theory - Gt. Brit. 5. AERE X/R 1052.

LUMBER AND WOOD PRODUCTS

Strength properties of timber, by F. H. Armstrong. Gt. Brit. Dept. of Scientific and Industrial Research. Forest Products Research Laboratory, Aylesbury, England. 1953. 45p photos, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.50. PB 112759

S. O. code no. 47-68-28.
1. Timber - Strength - Gt. Brit. 2. Wood - Tests - Gt. Brit. 3. DSIR FPR 28.

Use of hardwoods in building. Gt. Brit. Dept. of Scientific and Industrial Research. Forest Products Research Laboratory, Aylesbury, England.

1953. 10p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.10.

S. O. code no. 72-22-0-59.
1. Wood, Hard - Uses - Gt. Brit. 2. DSIR BRD 59.

MACHINERY

Air cooling methods for gas turbine combustion systems, by F. J. Bayley. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Aug 1951. 44p graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $ 2.25. PB 112762

Cover date is 1953. S. O. code no. 23-9007-33.
1. Turbines, Gas - Cooling - Gt. Brit. 2. Cooling systems - Gt. Brit. 3. ARC CP 133.

Case study data on productivity and factory performance: Hand tools. U. S. Bureau of Labor Statistics. Sep 1953. 111p photos, diagrs, tables Available from U. S. Bureau of Labor Statistics, Washington 25, D. C. PB 112796

Prepared for Foreign Operations Administration, Productivity and Technical Assistance Division.
1. Tools, Hand - Manufacture 2. Bits, Drilling 3. Files and rasps 4. Wrenches 5. BLS R 39.

Effect of polyphase motors on the voltage regulation of circuits supplying three-phase welder loads, by Max A. Faucett, Marvin Fisher, Jr., M. Stanley Helm. Illinois. Engineering Experiment Station, Urbana, Ill. Oct 1953. 40p photos, diagrs, graphs, tables Available from Engineering Experiment Station, University of Illinois, Urbana, Ill. $.40. PB 112657

University of Illinois bulletin, vol. 51, no. 19.
1. Welding - Equipment - Voltage - Mathematical analysis 2. Welding, Resistance 3. Circuits, Electric - Voltage regulation 4. ILU EES B 418.

Investigation of scavenging in small two-stroke cycle engines, by H. U. Wisniowski and H. Winterbottom. National Research Council of Canada. Division of Mechanical Engineering. Jul 1953. 36p photos, drawings, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. Available for exchange from National Research Council of Canada, Montreal Road, Ottawa, Canada. PB 112745

The results shown in the diagrams are discussed and conclusions drawn. NRCC ME 207.

Investigation of the pressure losses of takeoffs for extended-plenum type air conditioning duct systems, by Seichi Konzo, Stanley F. Gilman, J. William Holl, Ross J. Martin. Illinois. Engineering Experiment Station, Urbana, Ill. Aug 1953. 52p drawings, diagrs, graphs, tables Available from Engineering Experiment Station, University of Illinois, Urbana, Ill. $.50. PB 112654

University of Illinois bulletin vol. 51, no. 2. Report of an investigation conducted by the Engineering Experiment Station, University of Illinois, in cooperation with the American Gas Association and the National Warm Air Heating and Air Conditioning Association.
1. Ducts, Air - Losses 2. Air conditioning - Equipment 3. American Gas Association 4. National Warm Air Heating and Air Conditioning Association 5. ILU EES B 415.

Performance of some typical turbo-jet engine exhaust systems, with particular reference to the effects of swirl, by P. F. Ashwood and P. J. Fletcher. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Dec 1951. 28p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N.Y. $1.15. PB 112761

S. O. code no. 23-9007-30. Cover date is 1953.
1. Jet engines, Turbo-jet - Performance - Gt. Brit. 2. Jet engines, Turbo-jet - Exhaust systems - Gt. Brit. 3. ARC CP 130.

Schlieren tests on some conventional turbine cascades, by J. A. Dunsby. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Sep 1949. 14p photos, diagr, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.00. PB 112708

Cover date is 1953. S. O. code no. 23-2728.
1. Cascades (Aerodynamics) - Gt. Brit. 2. Mach number - Effect - Gt. Brit. 3. Schlieren method - Gt. Brit. 4. Turbines - Blades - Aerodynamics - Gt. Brit. 5. ARC RM 2728.

MEDICAL RESEARCH AND PRACTICE

Adenoid problem, by Ben H. Senturia. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Sep 1953. 8p photos Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.25, Photostat $1.25. PB 112738

The upper air passages radiate from the central cavity, the nasopharynx. The adenoid mass is the protector of this area. When repeated infections hyperplase the mass, it becomes a source of infection and trouble for the nose, sinuses, and ears. A new instrument for visualization of the nasopharynx is presented. AAF SAM Proj no. 21-1208-0010, Report no. 3.

Development of survival equipment peculiar to air evacuation, by Frederick A. Rodewald and Florence F. Fintak. U. S. Air Force. School of Aviation

Medicine, Randolph Field, Texas. Sep 1953. 6p photos Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.25, Photostat $1.25. PB 106828s

1. AAF SAM Proj 21-40-004, Report no. 1, Supplement.

Effects of moderate hypoxia on Glomerular and tubular function of the dog, by John D. Alexander. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Sep 1953. 11p graph, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112702

The results showed a similar renal hemodynamic response to hypoxia in acclimatized and unacclimatized animals. The excretion of sodium, potassium, and water was increased in both groups of dogs. The acclimatized animals appeared to be in a state of increased sodium and water deficit.

Mechanisms of hypersensitivity and their significance in relation to certain aspects of the radiation syndrome: A critical review, by Kenneth L. Burdon. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Aug 1953. 43p table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 112686

Selected papers from the extensive literature on hypersensitivity and related topics are reviewed. Critical comparisons are made between the prevailing cellular-histamine theory of allergy, the humoral (anaphylatoxin) theory, and the protease-activation theory. The probable usefulness of the newer experimental methods and theoretical concepts developed in the study of the latter theory in elucidating some of the basic mechanisms involved in the radiation syndrome is discussed. A bibliography of more than 420 references is appended. Bibliography: p. 28-41. AAF SAM Proj. no. 21-3501-0004, Report no. 1.

METALS AND METAL PRODUCTS

Analysis of uranium-titanium alloys, by G. W. C. Milner and P. J. Phennah. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Sep 1953. 16p graph, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 112717

S. O. code no. 70-674-1-57. HD. 991.
1. Uranium-titanium alloys - Analysis - Gt. Brit. 2. Uranium - Determination - Gt. Brit. 3. Titanium - Determination - Gt. Brit. 4. Alloys, Binary - Analysis - Gt. Brit. 5. Atomic power - Research - Gt. Brit. 6. AERE C/R 1236.

Crystal structure of berthierite, $FeSb_2S_4$, by M. J. Buerger and Theodor Hahn. Massachusetts Institute of Technology. Crystallographic Laboratory. Nov 1953. 30p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112803

Technical report 2. Contract N5ori-07860, Project NR032-346.
1. Berthierite - Crystal structure.

Determination of the dielectric constant and conductivity of germanium by microwave methods, by Hsi-Teh Hsieh. Massachusetts Institute of Technology. Solid-State and Molecular Theory Group. May 1952. 29p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112814

Contract N5ori-07856.
1. Germanium - Electrical properties 2. Dielectrics - Constants - Measurement 3. Radio waves - Theory 4. MIT SMT TR 2.

Fatigue tests at stresses producing failure in 2 to 10,000 cycles: 24S-T3 and 75S-T6 aluminum alloy sheet specimens with a theoretical stress-concentration factor of 4.0 subjected to completely reversed axial load, by Herbert F. Hardrath and Walter Illg. U. S. National Advisory Committee for Aeronautics. Jan 1954. 14p photo, diagr, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112793

Failures occurred in less than 50 cycles at two-thirds of the static tensile strength and in as few as 2 cycles when the applied load was near the static strength of the specimen. Test techniques and special test apparatus are described. NACA TN 3132.

Investigation of hydrothermal methods of producing single crystals of non-metallic ferromagnetic substances. Brush Laboratories Co., Cleveland, Ohio. First quarterly progress report, July 1st to Sep 30, 1953, under Contract AF 19(604)-867, by John Koenig. Sep 1953. 21p photos, drawing Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112795

Brush report no. 532-1.
1. Crystals, Magnetite - Growth.

Investigation of mechanical properties and physical metallurgy of aircraft alloys at very low temperatures. Part 4: Low-temperature mechanical properties, including fatigue of titanium-base alloys RC-130-B and Ti-150-A, by Joseph W. Spretnak and Mars G. Fontana. Ohio State University Research Foundation, Columbus, Ohio. Nov 1952. 41p photos, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 112768

Contract no. W33-038-ac-15698, Supplemental agreement no. 10 (S-51-1833). For Part 1 see PB 98635.
1. Titanium alloys - Mechanical properties 2. Titanium alloys - Tests 3. Airplanes - Materials - Low temperature tests 4. Low temperature research 5. AAF TR 5662, part 4.

Refinement of the structure of cubanite, $CuFe_2S_3$, by Leonid V. Azaroff and M. J. Buerger. Massachusetts Institute of Technology. Crystallographic Laboratory. Nov 1953. 30p drawings, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112804

Technical report 3. Contract N5ori-07860, Project NR-032-346.
1. Cubanite - Crystal structure.

Study of elastic and plastic stress concentration factors due to notches and fillets in flat plates, by Herbert F. Hardrath and Lachlan Ohman. U. S. National Advisory Committee for Aeronautics. 1953. 12p diagrs, graphs, table Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. $.15. PB 112682

The elastic stress concentration factors were found to be slightly higher than those predicted by other methods. Supersedes NACA TN 2566 (PB 105816). NACA Rept. 1117. NACA TN 2566, revised.

Study of selected metallic borides, nitrides and phosphides. Final report under Contract N8onr-80200, Project NR032-274, by R. W. F. Morel, G. C. Williams, F. E. Ryerson. Louisville. University. Institute of Industrial Research, Louisville, Ky. n.d. 59p drawings (1 fold), tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $5.50. PB 112734

1. Borides, Molybdenum 2. Borides, Tantalum 3. Borides, Thorium 4. Borides, Vanadium 5. Borides, Zirconium 6. Molybdenum nitride 7. Zirconium nitride 8. Vanadium nitrides.

Study of wire design requirements for single conductor copper wire and cable. Corvey Engineering Co., Washington, D. C. Final engineering report under Contract no. AF 33(616)-2101. Oct 1953. 128p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $5.00, Photostat $16.25. PB 112767

1. Wire, Copper - Specifications 2. Cables, Copper - Specifications.

METEOROLOGY AND CLIMATOLOGY

Aeronomical problem of nitrogen oxides, by Marcel Nicolet. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Oct 1953. 40p table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 112692

Contract no. AF 19(122)-44.
1. Nitrogen oxides - Atmospheric distribution 2. Nitrogen oxides - Molecular structure 3. Atmosphere, Upper - Ionization 4. PSC IRL SR 52.

Atmospheric oscillations and related synoptic patterns, by William Donn, Richard Rommer, Frank Press and Maurice Ewing. Columbia University. Lamont Geological Observatory, Palisades, N. Y. Nov 1953. 24p diagr, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112695

1. Oscillations, Atmospheric 2. Microbarovariograms 3. CUN LGO TRM no. 1.

Comparison of annual intensities of coronal emmission lines: Climax, Sacramento Peak, Arosa, Kanzelhöhe, Pic du Midi, Wendelstein, by Barbara Bell and Harold Glazer. Harvard University. Harvard College Observatory. Solar Dept. Sep 1953. 94p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $4.25, Photostat $12.50. PB 112672

Contract AF 19(604)-146.
1. Corona discharges - Measurement 2. HU HCO SR 12.

Direction studies using microseism ground-particle motion, by William L. Donn. Columbia University. Lamont Geological Observatory, Palisades, N. Y. Aug 1953. 32p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 112817

Contracts N6onr-27133 and AF 19(122)-441.
1. Microseisms 2. Trajectories, Particle 3. CUN LGO TRS 31.

Note on criteria for the movement and development of waves in the westerlies, by Thomas A. Gleeson. Florida. University. Dept. of Meteorology. May 1953. 19p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112640

Contract AF 19(122)-466. Scientific report no. 4.
1. Atmosphere - Turbulence - Theory.

Origin of the E-layer of the ionosphere, by Ernest Bauer and Ta-You Wu. New York University. Washington Square College of Arts and Sciences. Mathematics Research Group. Jul 1953. 13p graph, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112688

Contract no. AF 19(122)-463. Research report no. CX-9.
1. Ionosphere - E-layer 2. Atmosphere, Upper - Ionization.

Statistical properties of the vertical flux and kinetic energy at 100 meters, by H. A. Panofsky. Pennsylvania State College. Mineral Industries. Experiment Station. Div. of Meteorology. Jul 1953. 88p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.75, Photostat $11.25. PB 112644

Scientific report no. 2 under Contract no. AF 19(604)-166.
1. Atmosphere - Turbulence - Measurement
2. Kinetic reactions - Measurement.

Temporal and geographic distribution of sea level anticyclogenesis affecting Mediterranean weather, by Stanley L. Rosenthal and Thomas A. Gleeson. Florida. University. Dept. of Meteorology. Aug 1953. 48p diagrs, graphs, maps, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 112645

Contract AF 19(122)-466. Scientific report no. 5.
1. Meteorology - Mediterranean region 2. Anticyclones - Mediterranean region.

MINERALS AND MINERAL PRODUCTS

Case study data on productivity and factory performance: Brick and tile (by the stiff mud process), by Arthur N. Soronen. U. S. Bureau of Labor Statistics. Oct 1953. 89p photos, drawing, diagrs, graph, tables Available from U. S. Bureau of Labor Statistics, Washington 25, D. C. PB 112797

Prepared for the Foreign Operations Administration, Industrial and Technical Assistance Division.
1. Brick industry 2. Bricks - Manufacture 3. Tiles - Manufacture 4. BLS R 43.

Electron diffraction investigation of the disturbed surfaces of quartz due to abrasion, by G. W. Arnold, Jr. U. S. Naval Research Laboratory. Dec 1953. 14p photos, diagr, graph, table Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.50. PB 111303

The technique of electron diffraction has been employed to determine the depth of the disturbed layers for abrasives ranging from 150 mesh carborundum to iron oxide and aluminum oxide polishing compounds. The disturbance produced by abrasives other than polishing compounds was found to have a depth of from 0.18 micron to more than one micron. NRL R 4271.

ORDNANCE AND ACCESSORIES

Reynolds number effects on the drag of spinning projectiles in free flight, by W. R. Witt, Jr. U. S. Naval Ordnance Laboratory, White Oak, Md. Jul 1952. 25p photos, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112770

The results of the experiments are given in graphs and photographs. Aeroballistic research report 81. NOL ARR 81. NAVORD 2355.

PERSONNEL APTITUDE TESTING

Human relations and management: Motion pictures for industry. U. S. Office of Technical Services. Jan 1954. 21p Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $1.00. PB 111233

1. Personnel management - Bibliography 2. Motion pictures, Educational 3. OTS FB 4.

PHOTOGRAPHIC AND OPTICAL GOODS

Television recording system, by A. R. Glorioso and D. E. Koten. U. S. Naval Research Laboratory. Dec 1953. 29p photos, diagrs (1 fold), graphs, table Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.75. PB 111307

A film-recording system using a free-running, shutterless camera in conjunction with an electronic shutter, provides a versatile system adaptable to a wide variety of television line and frame rates. The electronic shutter, used in lieu of the camera's mechanical shutter, operates to blank and unblank the recording kinescope. NRL R 4245.

PHYSICS

General

Application of the theory of transient waves in viscoelastic materials, by D. Beckwith and E. H. Lee. Brown University. Graduate Division of Applied Mathematics, Providence, R. I. Nov 1952. 24p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112730

In this report the transformation into physical units is detailed, so that the dimensionless stress values

previously presented are interpreted in lb./sq.in. Cases of constant velocity impact, and prescribed constant acceleration are presented for a Maxwell material which exhibits elastic and viscous deformation. Constant velocity impact is considered for a four parameter model which includes in addition delayed elasticity. Simplifications in the method of analysis which can be achieved for certain groups of problems are discussed. Contract Nord-11496. PA TR-3/24.

Approximate solution to the problem of a freely floating cylinder in surface waves, by R. C. MacCamy. California. University. Institute of Engineering Research. Wave Research Laboratory, Berkeley, Calif. Oct 1953. 17p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112776

1. Equations of motion 2. Cylinders, Floating - Wave force - Mathematical analysis 3. Mathematical equations and solutions 4. UC IER series 61, issue 3.

Curves for estimating the wave drag of some bodies of revolution, based on exact and approximate theories, by L. E. Fraenkel. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Aug 1952. 15p graphs (part fold) Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.75. PB 112764

Cover date is 1953. S. O. code no. 23-9007-36.
1. Bodies of revolution - Drag, Viscous - Theory - Gt. Brit. 2. Flow, Supersonic - Theory - Gt. Brit. 3. Similarity - Theory - Gt. Brit. 4. ARC CP 136.

Derivation of the Bohr-Sommerfeld quantum conditions from an asymptotic solution of the Schroedinger equation, by Joseph B. Keller. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Jul 1953. 17p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112689

Contract no. AF 19(122)-463. Research report no. CX-10.
1. Schroedinger equation (Particle interactions) 2. Quantum theory 3. Mathematical equations and solutions.

Method of analyzing sensitivity data from "contaminated" populations, by Robert M. Eissner. U. S. Aberdeen Proving Ground. Ballistic Research Laboratories, Aberdeen, Md. Sep 1953. 29p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112914

Dept. of the Army project 503-06-00-2. Ordnance Research and Development project no. TB 3-0007L.
1. Sensitivity data - Mathematical analysis 2. APG BRL MR 722.

Problems of cosmical aerodynamics. Proceedings of the symposium on the motion of gaseous masses of cosmical dimensions held at Paris, Aug 16-19, 1949. International Union of Theoretical and Applied Mechanics and International Astronomical Union. May 1951. 246p photos, (1 fold) diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $9.00, Photostat $31.25. PB 112703

Contents: Chapter 1. Introduction, by J. H. Oort. - Chapter 2. Problems of interstellar gas clouds, by B. Strömgren. - Chapter 3. Physical properties of the interstellar gas, by L. Spitzer, Jr. - Chapter 4. Discussion on the physical state of the interstellar gas. - Chapter 5. Electromagnetic phenomena in the motion of gaseous masses of cosmical dimensions, by H. Alfven. - Chapter 6. Interstellar polarization and magneto-hydrodynamic waves, by H. C. van de Hulst. - Chapter 7. Discussion. - Chapter 8. Aerodynamical description of elementary expansion phenomena and shock waves, by J. M. Burgers. - Chapter 9. Expansion of an interstellar gas cloud into a vacuum, by G. C. McVittie. - Chapter 10. Discussion on the existence and uniqueness or multiplicity of solutions of the aerodynamical equations, J. von Neumann, Chairman. - Chapter 11. Physical problems of high-altitude flight, by R. J. Seeger. - Chapter 12. Collision of an expanding shell of gas with an interstellar cloud, by Helen A. Kluyver. - Chapter 13. Heating of the solar chromosphere by shock waves and related problems, by E. Schatzman. - Chapter 14. Properties of a shock wave in a gas with decreasing density, by J. M. Burgers. - Chapter 15. Nova phenomenon, by Cecelia Payne-Gaposchkin. - Chapter 16. Shell of nova aquilae 1918, by H. C. van de Hulst. - Chapter 17. Interaction of nova and supernova shells with the interstellar medium, by J. H. Oort. - Chapter 18. Discussion on shock waves in the interstellar gas and in the chromosphere, G. Temple, Chairman. - Chapter 19. Introductory remarks on turbulence, by Th. von Karman. - Chapter 20. Magnetic fields and turbulence in a fluid of high conductivity, by G. K. Batchelor. - Chapter 21. Discussion on interstellar magnetic fields, B. Lindblad, Chairman. - Chapter 22. Turbulence in interstellar matter (Part 1) by C. F. von Weizsäcker. - Chapter 23. Discussion. - Chapter 24. Distribution and motions of gaseous masses in spirals, by W. Baade and N. U. Mayall. - Chapter 25. Discussion. - Chapter 26. On the motion of dark clouds in galaxies and some related problems, by B. Lindblad. - Chapter 27. Discussion. - Chapter 28. Origin of the rotations of the galaxies, by F. Hoyle. - Chapter 29. Discussion. - Chapter 30. Turbulence in interstellar matter (part 2) by C. F. von Weizsäcker. - Chapter 31. Morphology of large scale aggregations of matter in the universe, by F. Zwicky. - Chapter 32. Discussion on the importance of compressibility and gravitation for the turbulence in the interstellar gas, H. Mineur, Chairman. - Chapter 33. Discussion on the influence of magnetic fields on turbulence, H. Mineur, Chairman. - Chapter 34. Hydrodynamic problems connected with the solar atmosphere, by H. Minnaert. - Chapter 35. Summary of the symposium, by J. M. Burgers.

Tables relating to Rayleigh scattering of light in the atmosphere (Numerical solution of Chandrasekhar's equations), by Zdenek Sekera and Edward V. Ashburn. U. S. Naval Ordnance Test Station, Inyokern, Calif. Oct 1953. 118p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $4.75, Photostat $15.00. PB 112720

Tables contain the intensities in the direction perpendicular and parallel to the vertical plane through the zenith and the sun (sun's vertical) for different zenith distances along this plane and for different zenith distances of the sun. NAVORD 2061. NOTS 757.

Viscoelastic vibrating reed, by R. D. Glauz. Brown University. Graduate Division of Applied Mathematics, Providence, R. I. May 1953. 23p diagrs, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112731

The amplitude of vibration of a viscoelastic vibrating reed with a mass attached to the free end is found for a general linearly time dependent stress-strain law. The particular case of zero mass and a Voight stress-strain law is considered in greater detail with tables and formulas developed for obtaining the complex modulus and physical constants. The use of the complex modulus in fitting experimental data with a stress-strain law is discussed. Contract Nord 11496. PA TR-4/22.

Wave propagation in a rod of Voigt material, by J. A. Morrison. Brown University. Graduate Division of Applied Mathematics, Providence, R. I. May 1953. 17p diagr, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112732

This report concerned with a Voigt material, which corresponds to a model having a spring and dashpot in parallel. The problem of longitudinal wave propagation in a semi-infinite rod which is initially unstrained and at rest and whose end is given an impulsive velocity, which is then maintained, is considered. Formulae for the stress and velocity distributions in the rod are obtained and their values are plotted against time for different positions in the rod and against position in the rod for different times, dimensionless coordinates being used. Contract Nonr-11496. PA TR-5/17.

Nuclear

Representation of an empirical function by means of a polynomial, by D. J. Behrens. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Nov 1950. 25p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.00. PB 112737

If the values of a function are given at n equally spaced intervals of the argument, a polynomial of order n — 1 can be found which corresponds exactly to the given values. Minor revisions July 1953. S. O. code no. 70-674-1-50. HD. 420. AERE T/R 580.

Self-consistent field equations for H_2 and H_3^-, by Ernest Bauer. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Aug 1953. 26p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112690

The self-consistent field equations are derived for three electrons in the state of lowest energy in the field of three fixed protons, in analogy with the Hartree-Fock equations for an atom. The corresponding problem for two electrons and two protons is also set up. Contract no. AF 19(122)-463. Research report no. CX-11.

PSYCHOLOGY

Decision making, by C. L. Winder. Stanford University. Dept. of Psychology, Stanford, Calif. Mar 1953. 36p diagrs, graph Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 112840

Contract Nonr 225 (01), Project NR 150-087, Technical report no. I.
1. Psychology, Applied 2. Personality - Research.

Symposium on psychological test screening for the armed forces. U. S. Research and Development Board. Mar 1952. 96p diagrs, graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $2.50. PB 111314

Contents: Manpower resources available to Selective Service, by Maj. Gen. Lewis B. Hershey. - Personnel requirements of the Armed Services, by Maj. Gen. E. C. Lynch. - Armed Services personnel procurement and induction procedures, by Col. James H. Banville. - The marginal man in the Armed Forces, by Dr. Eli Ginzberg. - Utilization of marginal personnel, by Dr. John T. Cowles. - Significance of non-test factors in screening for military service, by Dr. Lloyd G. Humphreys. - Specifications for psychological screening tests for the Armed Forces, by Dr. Edward A. Rundquist. - Current practices and problems in psychological test screening in the Armed Forces, by Dr. John T. Dailey. - Problems in the standardization and use of psychological screening tests for the Armed Forces, by Dr. J. E. Uhlaner. - Discussion. - Attendance list.
1. Psychological tests 2. Personnel, Military - Tests 3. RDB HPT 200/2.

Tracking response characteristics of the human operator, by J. I. Elkind. U. S. Air Force. Air

Research and Development Command. Human Factors Operations Research Laboratories, Bolling Air Force Base, Washington, D. C. Sep 1953. 16p photo, diagr, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112728

Contract AF 18(600)-322 with Massachusetts Institute of Technology.
1. Tracking - Tests 2. Tracking - Operator response - Theory 3. Tracking - Psychological aspects 4. Massachusetts Institute of Technology. Psychology Laboratory 5. AAF HFORL MR 40.

STRUCTURAL ENGINEERING

Buckling in compression of panels with square top-hat section stringers, by W. S. Hemp and K. H. Griffin. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1949. 14p diagrs, graphs, table Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.00. PB 112714

Cover date is 1953. S. O. code no. 23-2635.
1. Panels - Buckling - Gt. Brit. 2. Plates, Flat - Buckling - Theory - Gt. Brit. 3. Panels - Compression tests - Gt. Brit. 4. ARC RM 2635.

Comparative efficiency in bending of structural elements of various designs and solidity, by George Gerard. New York University. College of Engineering. Apr 1952. 86p diagrs, graphs, (part fold), tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.75, Photostat $11.25. PB 112722

Contract no. N6-onr-279, Task Order V.
1. Sandwich construction - Stresses 2. Airplanes - Materials - Stress analysis 3. Airplanes, Supersonic - Design.

Condensation in domestic chimneys. Gt. Brit. Dept. of Scientific and Industrial Research. Building Research Station, Watford, England. Nov 1953. 4p diagr Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.10. PB 112847

S. O. code no. 72-22-0-60. Supersedes Digest no. 5 (PB 110085).
1. Chimneys - Gt. Brit. 2. Condensation, Water vapor - Houses - Gt. Brit. 3. DSIR BRD 60.

Creep bending and buckling of linearly viscoelastic columns, by Joseph Kempner. U. S. National Advisory Committee for Aeronautics. Jan 1954. 22p diagrs, graphs Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112876

The results showed that creep deflection characteristics of the beam are identical to the creep strain characteristics of a bar under simple tension or compression. PIB 195. NACA TN 3136.

Creep buckling of columns, by Joseph Kempner and Sharad A. Patel. U. S. National Advisory Committee for Aeronautics. Jan 1954. 24p diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112877

Formulas are presented for the determination of the creep deflection-time characteristics of an initially curved idealized H-section column. PIB 205. NACA TN 3138.

District heating, parts I to V. Gt. Brit. Dept. of Scientific and Industrial Research. Building Research Board. Heating and Ventilation (Reconstruction) Committee. 1953. 211p drawings, diagrs, maps (part fold), graphs, tables (part fold) Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.70. PB 112709

1. Heating - Gt. Brit. 2. Heating, Central station - Gt. Brit. 3. Pumps, Heat - Gt. Brit. 4. DSIR PWBS no. 31.

District heating, part VI. Gt. Brit. Dept. of Scientific and Industrial Research. Building Research Board. Heating and Ventilation (Reconstruction) Committee. 1953. 263p drawings, diagrs (part fold), graphs, tables (part fold) Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $2.25. PB 112710

1. Heating - Gt. Brit. 2. Heating, Central station - Gt. Brit. 3. Heating, Hot water - Gt. Brit. 5. DSIR PWBS no. 32.

House insulation. Gt. Brit. Ministry of Works. 1953. 7p diagrs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.10. PB 112711

1. Insulation, Thermal - Buildings - Gt. Brit. 2. Insulating materials - Gt. Brit. 3. MOW AL 34.

Initial buckling of a long and slightly bowed panel under combined shear and normal pressure, by E. H. Brown and H. G. Hopkins. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1949. 19p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.40. PB 112856

Cover date is 1953. S. O. code no. 23-2766.
1. Panels, Curved - Buckling - Gt. Brit. 2. Panels, Curved - Compression tests - Gt. Brit. 3. Shear stress - Theory - Gt. Brit. 4. ARC RM 2766.

Load carrying capacity of circular plates, by H. G. Hopkins and W. Prager. Brown University. Graduate Division of Applied Mathematics, Providence,

R. I. Mar 1953. 24p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112910

The paper is concerned with the load carrying capacities of thin circular plates made of a perfectly plastic material that obeys the yield condition of Tresca and the associated flow rule. Various conditions of loading and support are discussed. Contract DA 19-020-ORD-798. GDAM DA-798/3. GDAM Tr 3.

On the analytical determination of the normal modes and frequencies of swept cantilever vibrations, by A. H. Hall, H. F. L. Pinkney and Helen A. Tulloch. Canada. National Aeronautical Establishment. Jul 1953. 98p photos, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $4.25, Photostat $12.50. PB 112648

A procedure for calculating the normal modes and frequencies of swept centilever plates is outlined, and is illustrated with a numerical example. Comparison of the theoretical frequencies is made for plates of 0, 30, 45 and 60 degrees sweep, and of the modes for 30, 45 and 60 degrees sweep. NAEC LR-76.

Permanent deflection of a plastic plate under blast loading, by A. J. Wang. Brown University. Graduate Division of Applied Mathematics, Providence, R. I. Dec 1953. 6p graph Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.25, Photostat $1.25. PB 112908

Contract DA 19-020-ORD-798. Dept. of the Army project 503-06-005. Ordnance project TB 3-0122. 1. Places, Circular - Plastic deformation 2. Plates, Circular - Stress analysis 3. Mathematical equations and solutions 4. GDAM DA 798/7 5. GDAM TR 7.

Productivity in house building, second report, by W. J. Reiners and H. F. Broughton. Gt. Brit. Dept. of Scientific and Industrial Research. Building Research Station, Watford, England. 1953. 41p map, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.45. PB 112758

S. O. code no. 47-550-21. For 1st report see PB 103068.
1. Houses - Construction - Gt. Brit. 2. DSIR NB SR 21.

Properties of tuned vibration dampers, by R. N. Hamme. Michigan. University. Engineering Research Institute. Acoustics Laboratory. Oct 1952. 60p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $7.50. PB 112701

Measurements are described which indicate the damping effectiveness of a light-weight vibration damping device which can be tuned to provide optimum damping over a selected frequency range. The criteria for comparison of spot dampers by means of vibration decay rate measurements are developed, and the relative damping effectivenesses of two types of spot damper are evaluated. Contract no. AF 18(600)-56. Appendix: Correction of vibration decay rate for differences in test plate masses. AAF WADC TR 52-328.

Strength, safety and economical dimensions of structures, by Arne I. Johnson. Sweden. Statens Kommittee för Byggnadsforskning. 1953. 167p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $6.25, Photostat $21.25. PB 112755

This book deals with the problem of calculating a building's economical dimensions, with regard taken to the uncertainty of such influencing factors as load, workmanship and strength. In the first section it is theoretically discussed. The effect on the material strength of the volume and the stress distribution is discussed. The theoretical calculations are then compared with results from tests. The book concludes with a description of how a structure's economical dimensions are calculated. In the final section, a comparison between the method here given and the current dimensioning methods is presented. Sweden. Meddelanden Nr. 22.

Stresses around rectangular cutouts in torsion boxes, by Paul Kuhn and James P. Peterson. U. S. National Advisory Committee for Aeronautics. Dec 1953. 71p diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112662

Comparisons with the results from three series of tests in which the dimensions of the cutouts varied over a wide range are shown. NACA TN 3061.

Studies of boundary value problems. Part I: Minimum methods for solving semihomogeneous boundary value problems, by Sven T. A. Ödman. Svenska Forskningsinstitutet för Cement och Betong, Stockholm. 1953. 44p diagr, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 112765

1. Boundary layer - Theory - Sweden 2. Polynomials, Orthogonal - Sweden 3. Plates, Rectangular - Vibration - Sweden 4. Svenska Forskningsinstitutet för Cement och Betong. Handlingar no. 20.

Theory for the bending of rectangular beams including the effects of shear and normal pressure, by Dan Frederick. Virginia. Engineering Experiment Station, Blacksburg, Va. Jul 1953. 14p diagrs, graphs Available from Engineering Ex-

periment Station, Virginia Polytechnic Institute, Blacksburg, Va. $.25. PB 112653

Bulletin of the Virginia Polytechnic Institute, vol. XLVI, no. 9.
1. Beams - Bending - Theory 2. Beams - Stress analysis 3. Shear stress - Theory 4. V EES B 86.

TEXTILES AND TEXTILE PRODUCTS

Out-of-state purchases of textile mill, apparel, and related products by Texas organizations, 1952, by James R. Bradley. Texas. Engineering Experiment Station, College Station, Texas. Sep 1953. 12p photos, maps, tables Available from Texas Engineering Experiment Station, College Station, Texas. PB 112687

1. Textile industry - Statistics 2. Clothing industry - Statistics 3. Markets - Texas 4. TU EES RR 44.

TRANSPORTATION EQUIPMENT

Aeronautics

Aircraft

Air forces and moments on triangular and related wings with subsonic leading edges oscillating in supersonic potential flow, by Charles E. Watkins and Julian H. Berman. U. S. National Advisory Committee for Aeronautics. 1952. 27p diagrs, graphs, table Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. $.25. PB 112813

Supersedes NACA TN 2457 (PB 105140).
1. Wings, Triangular - Aerodynamics 2. Wings, Sweptback - Aerodynamics 3. Flow, Supersonic - Theory 4. Mach number - Effect 5. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 6. NACA 1099.

Analysis of straight multicell wings on Cal-Tech analog computer, by Stanley U. Benscoter and Richard H. MacNeal. U. S. National Advisory Committee for Aeronautics. Jan 1954. 79p diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112785

1. Wings - Stress analysis 2. Wings - Loading - Calculations 3. Wings - Vibration - Calculation 4. California Institute of Technology, Pasadena, Calif. 5. NACA TN 3113.

Design data for multipost-stiffened wings in bending, by Roger A. Anderson, Aldie E. Johnson, Jr. and Thomas W. Wilder, III. U. S. National Advisory Committee for Aeronautics. Jan 1953. 31p diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112786

1. Loads, Structural - Bending 2. Loads, Structural - Compression 3. Wings - Stiffness 4. Plates, Stiffened - Design 5. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 6. NACA TN 3118.

Design of a right-angled bend with constant velocities at the walls, by A. S. Thom. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Feb 1952. 18p diagrs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.90. PB 112763

Cover date is 1953. S. O. code no. 23-9007-35.
1. Ducts, Elbow-shaped - Design - Gt. Brit. 2. Aerofoils - Design - Gt. Brit. 3. ARC CP 135.

Determination of the flying qualities of the Douglas DC-3 airplane, by Arthur Assadourian and John A. Harper. U. S. National Advisory Committee for Aeronautics. Dec 1953. 67p photos, diagrs, graphs, table Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112810

1. DC-3 (Airplane) 2. Airplanes - Performance 3. Stability, Longitudinal - Dynamic 4. Stability, Lateral - Dynamic 5. Stability, Directional - Dynamic 6. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 7. NACA TN 3088.

Effect of type of porous surface and suction velocity distribution on the characteristics of a 10.5-percent-thick airfoil with area suction, by Robert E. Dannenberg and James A. Weiberg. U. S. National Advisory Committee for Aeronautics. Dec 1953. 59p photos, diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112665

1. Airfoils - Light coefficient 2. Airfoils - Suction 3. Airfoils - Boundary layer - Suction effects 4. Airplanes - Materials - Tests 5. U. S. Ames Aeronautical aboratory, Moffett Field, Calif. 6. NACA TN 3093.

Experiments on rigid parachute models, by R. Jones. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Nov 1943. 21p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.40. PB 112706

Cover date is 1953. S. O. code no. 23-2520.
1. Parachutes - Models - Tests - Gt. Brit. 2. Parachutes - Stability - Effect of porosity - Gt. Brit. 3. Stability - Theory - Gt. Brit. 4. ARC RM 2520.

Impingement of water droplets on NACA 65A004 airfoil and effect of change in airfoil thickness from 12 to 4 percent at 4° angle of attack, by Rinaldo J. Brun, Helen M. Gallagher and Dorothea E. Vogt.

U. S. National Advisory Committee for Aeronautics. Nov 1953. 45p diagrs, graph, table Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112680

1. Drops, Liquid - Impingement on airfoils 2. Airfoils - Thickness - Effect on droplet impingement 3. Trajectories, Water droplet 4. U. S. Lewis Flight Propulsion Laboratory, Cleveland, Ohio 5. NACA TN 3047.

Langley annular transonic tunnel, by Louis W. Habel, James H. Henderson and Mason F. Miller. U. S. National Advisory Committee for Aeronautics. 1952. 12p photos, diagrs, graphs Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. $.15. PB 112683

1. Wind tunnels, Transonic - Design 2. Airfoils - Wind tunnel tests 3. Airfoils - Pressure distribution 4. Mach number - Effect 5. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 6. NACA 1106.

Method for calculating the subsonic steady-state loading on an airplane with a wing of arbitrary plan form and stiffness, by W. L. Gray and K. M. Schenk. U. S. National Advisory Committee for Aeronautics. Dec 1953. 123p diagrs, graphs, table Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112809

Based on Boeing Airplane Co. Document no. D-10624.
1. Wings - Span load distribution 2. Loads, Aerodynamic - Theory 3. Mach number - Effect 4. Boeing Airplane Co., Seattle, Wash. 5. NACA TN 3030.

On the kernel function of the integral equation relating the lift and downwash distributions of oscillating finite wings in subsonic flow, by Charles E. Watkins, Harry L. Runyan and Donald S. Woolston. U. S. National Advisory Committee for Aeronautics. Jan 1954. 44p Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112792

1. Equations, Integral 2. Downwash (Aerodynamics) - Theory 3. Lift - Theory 4. Flow, Subsonic - Theory 5. Flow, Three-dimensional - Theory 6. Wings - Aspect ratio 7. Mach number - Effect 8. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 9. NACA TN 3131.

Some effects of aspect ratio and tail length on the contribution of a vertical tail to unsteady lateral damping and directional stability of a model oscillating continuously in yaw, by Lewis R. Fisher. U. S. National Advisory Committee for Aeronautics. Jan 1954. 49p photos, diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112789

1. Tail design, Aircraft - Stabilizing effect 2. Tail surfaces - Aspect ratio 3. Damping derivatives - Stability 4. Stability, Lateral - Effect of tail 5. Stability, Lateral - Theory 6. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 7. NACA TN 3121.

Span load distributions resulting from constant vertical acceleration for thin sweptback tapered wings with stream-wise tips, supersonic leading and trailing edges, by Isabella J. Cole and Kenneth Margolis. U. S. National Advisory Committee for Aeronautics. Jan 1954. 62p diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112788

1. Wings, Sweptback - Span load distribution - Calculation 2. Flow, Supersonic - Theory 3. Mach number - Effect 4. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 5. NACA TN 3120.

Static properties and resistance characteristics of a family of seaplane hulls having varying length-beam ratio, by Arthur W. Carter and David R. Woodward. U. S. National Advisory Committee for Aeronautics. Jan 1954. 38p photo, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112787

1. Seaplanes - Hulls - Dead rise 2. Seaplanes - Hulls - Length-beam ratio 3. Stability, Lateral - Hydrodynamic 4. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 5. NACA TN 3119.

Tests on a swept-back wing and body in the compressed air tunnel, by C. Salter, C. J. W. Miles and H. M. Lee. Gt. Brit. Ministry of Supply. Aeronautical Research Council. May 1950. 15p photos, diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.25. PB 112852

Cover date is 1953. S. O. code no. 23-2738.
1. Wings, Sweptback - Wind tunnel tests - Gt. Brit. 2. Wings, Sweptback - Drag - Gt. Brit. 3. Wings, Sweptback - Lift distribution - Gt. Brit. 4. Wings, Sweptback - Pitching moments - Gt. Brit. 5. Reynolds number - Effect - Gt. Brit. 6. ARC RM 2738.

Two-dimensional subsonic flow of an inviscid fluid about an aerofoil by arbitrary shape, by L. C. Woods. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Nov 1950. 58p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $3.50. PB 112707

Cover date is 1953. S. O. code no. 23-2811.
1. Flow, Incompressible - Theory - Gt. Brit. 2. Flow, Compressible - Theory - Gt. Brit. 3. Flow, Subsonic - Theory - Gt. Brit. 4. Flow, Two-dimensional - Theory - Gt. Brit. 5. Polygon method (Aerodynamics) - Gt. Brit. 6. ARC RM 2811.

Velocity distribution on untapered sheared and swept-back wings of small thickness and finite aspect ratio at zero incidence, by S. Neumark

and J. Collingbourne. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Mar 1949. 50p diagrs, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $3.50. PB 112704

Cover date is 1953. S. O. code no. 23-2717.
1. Wings, Sweptback - Velocity distribution - Gt. Brit. 2. Wings, Sweptback - Aspect ratio - Calculations - Gt. Brit. 3. Wings, Untapered - Velocity distribution - Gt. Brit. 4. Mathematical equations and solutions - Gt. Brit. 5. ARC RM 2717.

Instruments

An aircraft icing-rate meter, by G. M. Wright. Canada. National Aeronautical Establishment. Jun 1953. 7p photo, diagr Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.25, Photostat $1.25. PB 112650

An instrument is described which gives rate of aircraft icing as indicated by the duration of the "off" period of any "off-on" type of icing detector. During each off-period, one of two identical low-loss condensers is discharging through a suitable resistance while the other, without leakage resistance, is displaying its voltage via a simple electronic voltmeter. These functions are interchanged at each on-period, during which interval the measuring condenser is also recharged. The instrument is stabilized and operates directly from 25- to 30-volt direct current. NAEC LR 66.

Aircraft separation visual indicator, by John M. Thompson. U. S. Air Force. Air Research and Development Command, Rome Air Development Center, Rome, N. Y. Nov 1953. 37p photos, drawings, diagrs, fold tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 112757

1. Indicators, Air position 2. AAF RADC TR 53-7.

Characteristics of an orifice-type icing-detector probe, by D. Fraser. Canada. National Aeronautical Establishment. Jun 1953. 28p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. Available for exchange from National Aeronautical Establishment, Montreal Road, Ottawa, Canada. PB 112505

Lab. order: 6253A. File: M4-A3-R22.
1. Indicators, Ice - Canada 2. Probes, Icing detector - Canada 3. Ice formation - Measurement - Canada 4. NAEC LR-71.

Coding of aircraft controls, by Darwin P. Hunt. U. S. Air Force. Air Research and Development Command. Wright Air Development Center. Aero-Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Aug 1953. 31p diagrs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $1.00. PB 111322

This report summarizes the available information concerning several techniques of control coding which seem to be of value to the design engineers. Control coding means providing the operator with a way of identifying the controls. Five methods of control coding are discussed: Shape coding, size coding, location coding, color coding, and mode-of-operation coding. Information is given concerning each coding technique so that the design engineer can apply any of these methods as the need arises. Many of the advantages and disadvantages of each method are pointed out. The question of when to code and the type of coding to use are discussed. AAF WADC TR 53-221.

Design charts for forced air cooled airborne electronic equipment, by W. Robinson, L. S. Han, R. H. Essig. Ohio State University Research Foundation, Columbus, Ohio. Oct 1951. 64p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.00, Photostat $8.75. PB 112525

General design considerations for forced-air-cooled airborne electronic equipment are discussed from the viewpoint of thermal characteristics and arrangement of electronic components. The analytical criteria for the selection of component spacings are presented, expressed in terms of relative equipment size and cooling power requirements. Design charts are developed and their uses are illustrated with several examples which show applications for determination of component arrangements, air flow requirements, component surface temperatures, pressure drop of cooling air, and cooling power requirements. Report no. 42 under Contract W33-038ac-14987. Some pages will not reproduce well.

Design of a rate-of-rotation recorder, by S. J. Murphy and S. H. G. Connock. Canada. National Aeronautical Establishment. Jul 1953. 36p photos, diagrs, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. Available for exchange from National Aeronautical Establishment, Montreal Road, Ottawa, Canada. PB 112651

This report describes a recorder of the continuous-trace type designed to record simultaneously rates of rotation of an aeroplane about three mutually perpendicular axes. It includes a brief review of some possible methods of measuring rates of rotation and also a theoretical study of the behavior of such recording devices when the parameter to be recorded has a frequency of the same order as that of the recording elements. Results of laboratory dynamic tests are given. Appendix A. Behaviour of spring systems with viscous damping under conditions of vibration. - Appendix B. Determination of damping coefficient from free vibration curves. NAEC LR-68.

Direct reading thermistor thermometer for aircraft use, by G. M. Wright. Canada. National Aeronautical Establishment. Jun 1953. 7p photo, diagr, graph Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.25, Photostat $1.25. Available for exchange from National Aeronautical Establishment, Montreal Road, Ottawa, Canada. PB 112649

1. Thermometers, Aircraft - Design - Canada 2. NAEC LR-65.

Engines and Propellers

Analysis of the air flow through the nozzle blades of a single stage turbine, by I. H. Johnston. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Feb 1951. 18p drawings, diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.75. PB 112491

Memorandum no. M. 108, National Gas Turbine Establishment. Cover date is 1953. S. O. code no. 23-9007-31.
1. Turbines, Gas - Blades - Flow - Calculation - Gt. Brit. 2. Turbines - Blades - Flow - Calculation - Gt. Brit. 3. Turbines, Axial - Theory - Gt. Brit. 4. Cascades (Aerodynamics) - Theory - Gt. Brit. 5. Wind tunnels - Nozzles - Air flow - Gt. Brit. 6. ARC CP 131.

Calculation of the catch of water by a jet engine during high-speed flight in cloud, by D. A. J. Millar. Canada. National Aeronautical Establishment. Jun 1953. 33p photo, drawing, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. Available for exchange from National Aeronautical Establishment, Montreal Road, Ottawa, Canada. PB 112769

1. Jet engines, Turbo-jet - Air flow - Canada 2. Jet engines, Turbo-jet - Effect of humidity - Canada 3. Trajectories, Water droplet - Calculation - Canada 4. NAEC LR-78.

Effect of a rapid blade-pitch increase on the thrust and induced-velocity response of a full-scale helicopter rotor, by Paul J. Carpenter and Bernard Fridovich. U. S. National Advisory Committee for Aeronautics. Nov 1953. 26p photos, diagrs, graphs Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112679

1. Helicopter blades - Pitch 2. Helicopters - Rotors - Thrust 3. Helicopters - Rotors - Velocity, Induced 4. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 5. NACA TN 3044.

Engine conditioning for reciprocating engines. U. S. Air Force. Mar 1953. 73p drawings, graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $1.50. PB 111247

1. Engines, Aircraft - Maintenance and repair 2. Engines, Reciprocating - Maintenance and repair 3. AAF M 52-9.

General treatment of static longitudinal stability with propellers, with application to single engined aircraft, by E. Priestley. Gt. Brit. Ministry of Supply. Aeronautical Research Council. May 1944. 20p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.25. PB 112855

Cover date is 1953. S. O. code no. 23-2732.
1. Airplanes - Stability - Effect of propellers - Gt. Brit. 2. Stability, Longitudinal - Static - Gt. Brit. 3. Stability, Longitudinal - Effect of propeller - Gt. Brit. 4. ARC RM 2732.

Induced velocity field of a rotor, by K. W. Mangler and H. B. Squire. Gt. Brit. Ministry of Supply. Aeronautical Research Council. May 1950. 16p diagrs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N.Y. $1.25. PB 112853

Cover date is 1953. S. O. code no. 23-2642.
1. Helicopters - Rotors - Velocity, Induced - Gt. Brit. 2. Helicopters - Rotors - Downwash - Gt. Brit. 3. Helicopters - Rotors - Theory - Gt. Brit. 4. ARC RM 2642.

One-dimensional, compressible, viscous flow relations applicable to flow in a ducted helicopter blade, by John R. Henry. U. S. National Advisory Committee for Aeronautics. Dec 1953. 16p graphs Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112663

1. Flow, Compressible - Theory 2. Flow, One dimensional - Theory 3. Flow, Viscous - Theory 4. Helicopter blades - Tips - Flow patterns 5. Mach number - Effect 6. Reynolds number - Effect 7. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 8. NACA TN 3089.

Some preliminary model experiments on the whirling of shafts, by E. Downham. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1950. 20p photos, diagr, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.25. PB 112489

Cover date is 1953. S. O. code no. 23-2768.
1. Shafts, Rotating - Tests - Gt. Brit. 2. Shafts, Rotating - Theory - Gt. Brit. 3. ARC RM 2768.

Use of electric analogs for calculation of temperature distribution of cooled turbine blades, by Herman H. Ellerbrock, Jr., Eugene F. Schum and Alfred J. Nachtigall. U. S. National Advisory Committee for Aeronautics. Dec 1953. 116p photos, diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112661

1. Heat - Transference - Theory 2. Circuits, Electric - Analogies 3. Turbines - Blades - Temperature distribution 4. U. S. Lewis Flight Propulsion Laboratory, Cleveland, Ohio 5. NACA TN 3060.

Wind-tunnel tests on a 12-ft diameter helicopter rotor, by H. B. Squire, R. A. Fail and R. C. W. Eyre. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Apr 1949. 19p photos, diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.40. PB 112473

Cover date is 1953. S. O. code no. 23-2695.
1. Helicopters - Rotors - Wind tunnel tests 2. ARC RM 2695.

Airports and Airways

Control tower operator, selected references, by William J. Flynn, Jr., Doris Weigle, Robert Gunn. Personnel Research Center, Inc., Detroit, Mich. Nov 1953. 31p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 112696

Contract no. AF 18(600)-470.
1. Airports - Control towers - Operators - Bibliography 2. U. S. Air Force. Air Research and Development Command. Human Factors Operations Research Laboratories, Bolling Air Force Base, Washington, D. C.

Aerodynamics

Aerodynamic heating on yawed infinite wings and on bodies of arbitrary shape, by H. Schuh. Sweden. Kungl. Tekniska Högskolan, Stockholm. Jul 1953. 12p graph, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 112481

1. Boundary layer - Theory - Sweden 2. Flow, Laminar - Theory - Sweden 3. Wings - Boundary layer - Temperature distribution - Sweden 4. Bodies of revolution - Heat transference - Calculation - Sweden 5. Heating, Aerodynamic - Theory - Sweden 6. KTH AERO TN 35.

Analytical investigation of the effect of the rate of increase of turbulent kinetic energy in the stream direction on the development of turbulent boundary layers in adverse pressure gradients, by Bernard Rashis. U. S. National Advisory Committee for Aeronautics. Nov 1953. 30p graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112681

1. Boundary layer, Turbulent - Theory 2. Reynolds number - Effect 3. Kinetic theory 4. Shear stress - Theory 5. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 6. NACA TN 3049.

Evaluation of downwash at large spanwise distances from a vortex lattice, by H. C. Garner. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Dec 1950. 8p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 112705

Cover date is 1953. S. O. code no. 23-2808.
1. Downwash (Aerodynamics) - Theory - Gt. Brit. 2. Vortex motion - Theory - Gt. Brit. 3. ARC RM 2808.

Experimental investigation at a Mach number of 2.41 of average skin-friction coefficients and velocity profiles for laminar and turbulent boundary layers and an assessment of probe effects, by Robert M. O'Donnell. U. S. National Advisory Committee for Aeronautics. Jan 1954. 38p diagrs, graphs Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112790

1. Friction, Boundary 2. Boundary layer, Laminar - Flow 3. Boundary layer, Laminar - Theory 4. Boundary layer, Turbulent - Theory 5. Boundary layer, Turbulent - Flow 6. Boundary layer - Probe effects 7. Mach number - Effect 8. Reynolds number - Effect 9. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 10. NACA TN 3122.

Experimental investigation of the effects of cooling on friction and on boundary-layer transition for low-speed gas flow at the entry of a tube, by Stephen J. Kline and Ascher H. Shapiro. U. S. National Advisory Committee for Aeronautics. Nov 1953. 65p diagrs, graphs, table Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112590

1. Flow, Subsonic - Theory 2. Flow, Laminar - Theory 3. Flow, Turbulent - Theory 4. Boundary layer, Laminar - Flow - Effect of temperature 5. Boundary layer, Laminar - Theory 6. Friction - Measuring equipment 7. Friction - Effect of temperature 8. Reynolds number - Effect 9. Massachusetts Institute of Technology 10. NACA TN 3048.

Free-stream boundaries of turbulent flows, by Stanley Corrsin and Alan L. Kistler. U. S. National Advisory Committee for Aeronautics. Jan 1954. 111p photos, diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112794

1. Flow, Turbulent - Theory 2. Boundary layer, Laminar - Flow 3. Johns Hopkins University. Dept. of Aeronautics 4. NACA TN 3133.

Generalized theory for seaplane impact, by Benjamin Milwitzky. U. S. National Advisory Committee for Aeronautics. 1952. 78p diagrs, graphs, tables Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. $.55. PB 112812

Based on NACA TN 1516 and TN 1630.
1. Hydrodynamics - Theory 2. Hulls, Seaplane - Dead rise 3. Hulls, Seaplane - Length-beam ratio 4. Loads, Landing - Impact 5. Loads, Structural - Theory 6. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 7. NACA 1103.

Hydrodynamic drag of 12- and 21-percent-thick surface-piercing struts, by Claude W. Coffee, Jr. and Robert E. McKann. U. S. National Advisory Committee for Aeronautics. Dec 1953. 28p photos, diagrs, graphs, table Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112811

1. Drag, Hydrodynamic - Measurement 2. Struts - Drag 3. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 4. NACA TN 3092.

Investigation at supersonic speeds of the wave drag of seven boattail bodies of revolution designed for minimum wave drag, by August F. Bromm, Jr. and Julia M. Goodwin. U. S. National Advisory Committee for Aeronautics. Dec 1953. 14p photo, diagrs, graphs Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112626

1. Flow, Supersonic 2. Flow, Laminar 3. Flow, Turbulent 4. Bodies of revolution - Drag 5. Mach number - Effect 6. Reynolds number - Effect 7. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 8. NACA TN 3054.

Low-speed drag of cylinders of various shapes, by Noel K. Delany and Norman E. Sorensen. U. S. National Advisory Committee for Aeronautics. Nov 1953. 22p photos, graphs, table Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112585

1. Cylinders - Drag 2. Reynolds number - Effect 3. Flow, Viscous 4. U. S. Ames Aeronautical Laboratory, Moffett Field, California 5. NACA TN 3038.

Method for calculation of laminar heat transfer in air flow around cylinders of arbitrary cross section (including large temperature differences and transpiration cooling), by E. R. G. Eckert and John N. B. Livingood. U. S. National Advisory Committee for Aeronautics. 1953. 31p diagrs, graphs Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. $.30. PB 112771

Supersedes NACA TN 2733 (PB 107108).
1. Turbines, Gas - Cooling 2. Heat transference - Theory 3. Flow, Laminar - Heat transference 4. Cooling systems 5. U. S. Lewis Flight Propulsion Laboratory, Cleveland, Ohio 6. NACA TN 2733 Revised 7. NACA 1118.

Method for estimating the effect of turbulent velocity fluctuations in the boundary layer on diffuser total-pressure-loss measurements, by Jerome Persh and Bruce M. Bailey. U. S. National Advisory Committee for Aeronautics. Jan 1954. 16p graphs Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112791

1. Diffusers, Conical - Pressure distribution 2. Diffusers, Subsonic - Pressure distribution 3. Flow, Turbulent - Theory 4. Boundary layer - Aerodynamics 5. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 6. NACA TN 3124.

Reciprocity relations in aerodynamics, by Max A. Heaslet and John R. Spreiter. U. S. National Advisory Committee for Aeronautics. 1953. 18p diagrs, graphs Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. $.20. PB 112772

Supersedes NACA TN 2700 (PB 106879).
1. Airplanes - Maneuverability 2. Flow, Compressible - Theory 3. Aerodynamics - Theory 4. Wing theory 5. Gust loads 6. U. S. Ames Aeronautical Laboratory, Moffett Field, Calif. 7. NACA TN 2700 Revised 8. NACA 1119.

Some features of artifically thickened fully developed turbulent boundary layers with zero pressure gradient, by P. S. Klebanoff and Z. W. Diehl. U. S. National Advisory Committee for Aeronautics. 1952. 29p photos, diagr, graphs Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. $.30. PB 112684

Supersedes NACA TN 2475 (PB 105418).
1. Flow, Turbulent 2. Boundary layer, Turbulent - Flow 3. Boundary layer, Turbulent - Velocity distribution 4. Boundary layer, Turbulent - Thickness 5. U. S. National Bureau of Standards 6. NACA TN 2475 Revised 7. NACA 1110.

Summary of revised gust-velocity data obtained from V-G records taken on civil transport airplanes from 1933 to 1950, by Walter G. Walker. U. S. National Advisory Committee for Aeronautics. Nov 1953. 16p graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112588

1. Gust loads 2. Airplanes, Transport - Aerodynamics 3. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 4. NACA TN 3041.

Land Transportation

Case study data on productivity and factory performance: Farm tractors. U. S. Bureau of Labor Statistics. Aug 1953. 187p photos, drawings, tables Available from U. S. Bureau of Labor Statistics, Washington 25, D. C. PB 112739

Prepared for Foreign Operations Administration,

Productivity and Technical Assistance Division.
1. Tractors, Wheeled 2. Agricultural machinery
3. BLS R 38.

Marine Transportation

On the possibilities of estimating the towing resistance of ships by tests with small models, I, by Curt Falkemo. Sweden. Kungl. Tekniska Högskolan, Stockholm. 1953. 52p photos, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $7.50. PB 112615

Acta polytechnica 122, Mechanical engineering series vol. 2, no. 8. Also issued as Kungl. Tekniska Högskolans Handlingar nr. 64. Publication no. 2 of the Ship Testing Laboratory.
1. Ship models - Tests - Sweden 2. Ship models - Wave resistance - Sweden 3. Ships - Towing resistance - Sweden 4. Equations of motion - Sweden.

WATER SUPPLY, SANITATION AND PUBLIC HEALTH

Correlation of sewage chlorine demand data, by Linvil G. Rich, Robert E. Opferkuch, Jr., and Charles E. Williams. Virginia. Engineering Experiment Station, Blacksburg, Va. Aug 1953. 12p graphs, tables Available from Engineering Experiment Station, Virginia Polytechnic Institute, Blacksburg, Va. $.25. PB 112652

Bulletin of the Virginia Polytechnic Institute, vol. XLVI, no. 10.
1. Sewage - Chlorination 2. V EES B 87.

Nagra systematiska försök med modeller av mindre kustfartyg (Tests with models of coasters), by Axel O. Warholm. Sweden. Statens Skeppsprovningsanstalt, Göteborg, Sweden. 1953. 93p photos, diagrs, graphs (part fold), tables (Text in Swedish) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $4.25, Photostat $12.50. PB 112753

Summary in English. Section headings in Swedish and English.
1. Ship models - Tests - Sweden 2. Ships - Wave resistance - Sweden 3. Ships - Propulsion - Sweden 4. Sweden. Statens Skeppsprovningsanstalt, Göteborg, Sweden. Meddelanden nr. 24.

Swimming pools and bathing beaches. Florida. Engineering and Industrial Experiment Station, Gainesville, Fla. Proceedings of the sixth Florida Public Health Engineering Conference, March 24 and 25, 1953, sponsored by the Dept. of Civil Engineering. Sep 1953. 56p graphs, tables Available from The Director, Florida Engineering and Industrial Experiment Station, Gainesville, Fla. PB 112604

Engineering progress at the University of Florida, vol. VII, no. 9, Sep 1953. Contents: Supervision of public swimming pools and bathing beaches, by Ralph H. Baker, Jr. - Relationship of bathing water quality to health, by Albert H. Stevenson. - Discussion by James B. Lackey. - Design and construction of swimming pools, by Alexis B. Kononoff. - Discussion by Harry L. Ludwig and Raymond J. Stewart. - Maintenance of swimming pools, by Frank H. Snary. - Breakpoint chlorination of swimming pool water, by Ellis K. Phelps. - Care and operation of chlorinating equipment, by Alvin R. Murphy, Jr. - Other methods of disinfecting pool water, by E. R. Hendrickson. - Operation of purification and recirculation equipment, by George H. Neubauer. - Sanitation of bathhouses and environs, by A. W. Morrison, Jr. - Control of algae in swimming pools, by Fred A. Eidsness. - Septum filters for swimming pools, by John E. Kiker, Jr. - Operating at a profit, by Sylvan Hoffman. - Swimming pool operators associations, by Thomas F. Buckley.
1. Swimming pools - Sanitation 2. Swimming pools - Design 3. Water - Purification 4. Water - Purification equipment 5. Water - Chlorination 6. Florida Public Health Engineering Conference, 6th, 1953 7. F EES B 62.

Transverse stability and resistance of single-step boats when planing, by R. Rödström, Hans Edstrand and H. Bratt. Sweden. Statens Skeppsprovningsanstalt, Göteborg, Sweden. 1953. 40p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 112754

1. Ship models - Tests - Sweden 2. Ships - Stability tests - Sweden 3. Ships - Wave resistance - Tests - Sweden 4. Sweden. Statens Skeppsprovningsanstalt, Göteborg, Sweden. Meddelanden nr. 25.

Water requirements survey, Red River basin, Texas: A study of resource utilization, industrial development potentials, population growth and water use, by John R. Stockton, Stanley Arbingast and W. Bion Moore. Texas. University. Bureau of Business Research, Austin, Texas. Sep 1953. 180p maps (2 fold), graphs (1 fold), tables Available from Bureau of Business Research, University of Texas, Austin, Texas. $2.00. PB 112475

1. Water supply systems 2. Water - Conservation
3. Industrial research 4. Population - Growth
5. Economic resources 6. Rivers - Drainage
7. U. S. Bureau of Reclamation.

Water requirements survey, Texas high plains: A study of resource utilization, industrial development potentials, population growth and water use, by John R. Stockton and Stanley Arbingast. Texas. University. Bureau of Business Research, Austin, Texas. Mar 1952. 103p maps (1 fold), graphs, tables Available from Bureau of Business Research, University of Texas, Austin, Texas. $2.00. PB 112478

1. Water supply systems 2. Water - Conservation
3. Industiral research 4. Population - Growth
5. Economic resources 6. Rivers - Drainage
7. U. S. Bureau of Reclamation.

ATOMIC ENERGY COMMISSION PUBLICATIONS

The publications listed below are available from the Office of Technical Services, Washington 25, D. C., at the prices indicated. PREPAYMENT IS REQUIRED. List titles desired on Order Blank (A). Check or money order accompanying the order should be made payable to the Treasurer of the United States.

AECD-3459 "Description and Test Results of a 400-GPM Liquid Metal Induction Pump," by J. F. Cage, Jr. and E. H. Schoch. October 23, 1951. 55p. $.45.

AECD-3589 "Cavity Design Data for High Energy Linear Accelerators", by S. W. Kitchen, A. D. Schelberg, B. V. Hill and R. G. Smits. December 9, 1952. 37p. $.45.

AECD-3590 "Recalibration of the X-10 Standard Graphite Pile", by E. D. Klema, R. H. Ritchie and G. McCammon. October 17, 1952. 8p. $.10.

AECU-2731 "The Third Virial Coefficient of a Lennard-Jones Gas by Kihara's Method, with Tables for the 6-9 Potential", by Leo F. Epstein, Celesta J. Hibbert, Marion D. Powers and Glenn M. Roe. 1952. 57p. $.55.

ANL-5111 "Annotated Bibliography in Radiobiology", compiled by Sophie V. Stephens and Robert D. Boche. December 1953. 360p. $2.10.

HW-28803 "A Study of Photographic Emulsion Calibration Techniques," by John A. Parodi and W. G. Burch, Jr. July 27, 1953. 37p. $.35.

ISC-237 "Mechanical Characteristics of Slurries", by Glenn Murphy, Warren I. Mitchell and Donald F. Young. June 25, 1952. 71p. $.55.

ISC-351 "A Fast Sweep Generator", by C. Harper and E. Sanford. May 19, 1953. 15p. $.20.

MTA-12 "Dynamic Corrosion of Steel by Liquid Bismuth", by O. J. Elgert and C. J. Egan. January 6, 1953. 21p. $.25.

MTA-35 "Calculation of Stagewise Contacting Systems", by J. L. Bloom and P. L. Auer. May 22, 1953. 45p. $.45.

MTA-39 "An Automatic Sweep Unit for Single Channel Pulse Height Analyzers", by G. D. O'Kelley. October 1953. 12p. $.20.

NSF-tr-128 "On the Theory of Striae in Gaseous Discharge", by M. F. Shirokov. 5p. Translated from Doklady Akademii Nauk SSSR, 89, 837-40 (1953). $.10.

NSF-tr-129 "On the Dynamics of Evaporation of Ideal Multi-Component Liquid Mixtures", by L. I. Rubinshtein. 4p. Translated from Doklady Akademii Nauk SSSR, 90, 987-90 (1953). $.10.

NSF-tr-130 "An Isotopic-Spin Invariant Theory of β -Decay", by V. V. Sudakov. 2p. Translated from Doklady Akademii Nauk SSSR, 90, 1009-10 (1953). $.10.

NSF-tr-131 "Screening Action of a Thin Elastic Layer", by V. Babich and A. Alekseyev. 3p. Translated from Doklady Akademii Nauk SSSR, 91, 763-65 (1953). $.10.

NSF-tr-132 "On the Dynamics of Evaporation of Polycomponent Solutions in a Nonvolatile Solvent", by L. I. Rubinshtein. 3p. Translated from Doklady Akademii Nauk SSSR, 91, 767-69 (1953). $.10.

NSF-tr-133 "The Modulation Method of Measuring Dispersion of Ultrasonic Radiation", by V. A. Zverev. 4p. Translated from Doklady Akademii Nauk SSSR, 91, 791-94 (1953). $.10.

NSF-tr-134 "On the Stretching of Polymer Chains", by M. V. Volkenshtein and O. B. Ptitsyn. 5p. Translated from Doklady Akademii Nauk SSSR, 91, 1313-16 (1953). $.10.

NSF-tr-135 "Disintegration into 3 π -Mesons and the Hypothesis of Isotopic Invariance", by V. B. Berestetsky. 3p. Translated from Doklady Akademii Nauk SSSR, 92, 519-21 (1953). $.10.

NSF-tr-136 "Limits of Applicability of the Theory of Bremsstrahlung Electrons and Pair Production for High Energies", by Academician L. Landau and I. Pomeranchuk. 2p. Translated from Doklady Akademii Nauk SSSR, 92, 535-36 (1953). $.10.

NSF-tr-138 "On the Effect of Change in Deformation Rate on Plastic Deformation", by L. I. Vasilyev, A. S. Bylina, and M. P. Zagrebennikova. 3p. Translated from Doklady Akademii Nauk SSSR, 90, 767-69 (1953). $.10.

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